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THE  
BRITISH  
FARMER'S MAGAZINE.

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NEW SERIES—No. 126, OCTOBER, 1868.



Agriculture not only gives riches to a Nation, but the only riches she can call her own.—DR. JOHNSON.

DOUBLE NUMBER.



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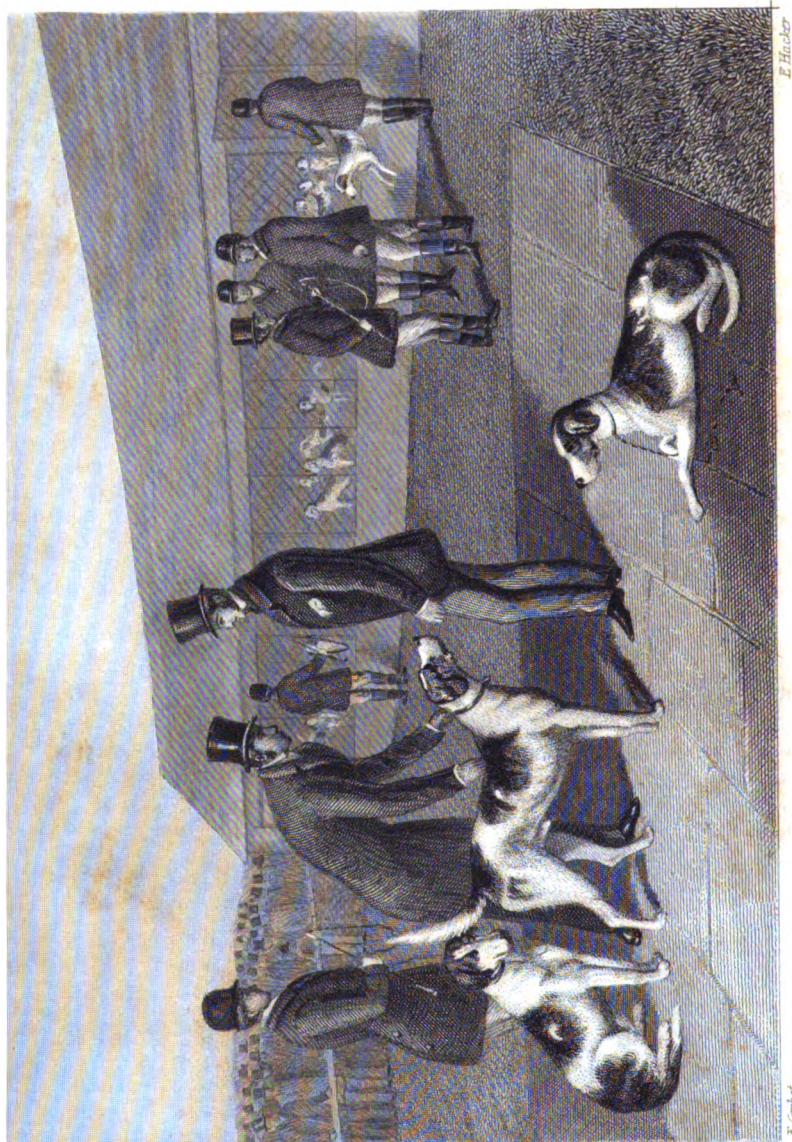
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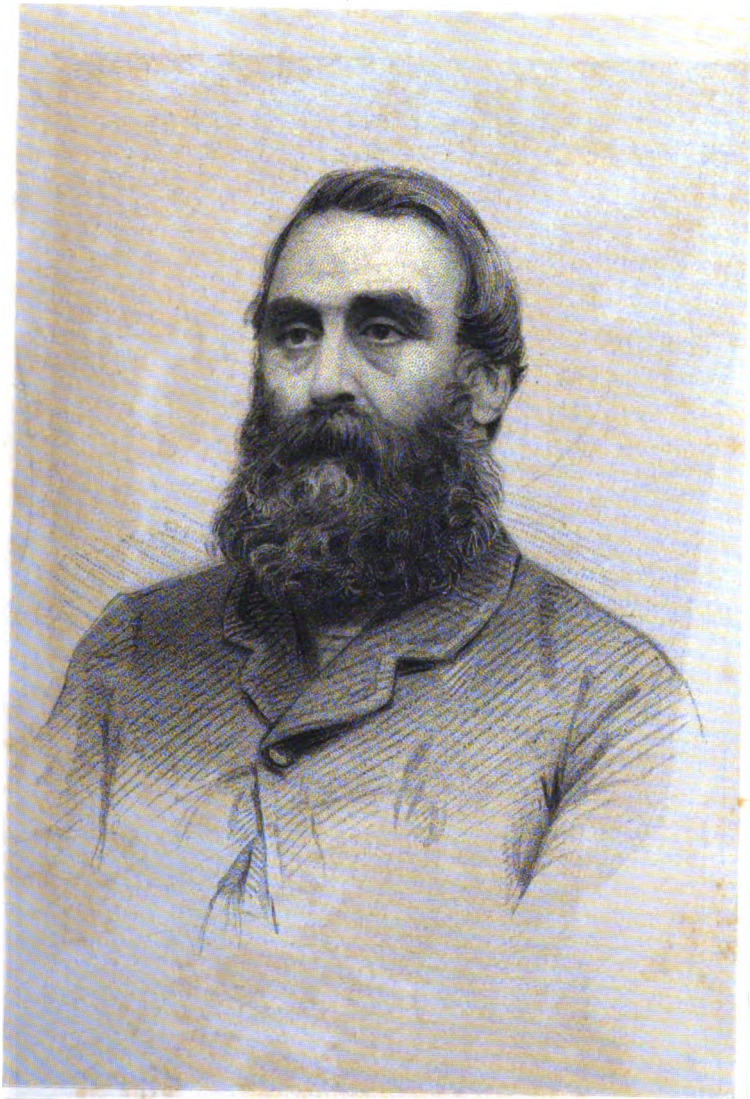






# *On the Flugs.*

London: Published by Eyre, Spottiswoode & Turner, 15, Strand, 1878.



*Engraved by H. Hunt from a Photograph by J. Hunt*

*Trillick, es.*  
*Chas. Swell Read*

*London Published by Reynolds & Taites, 215 Strand, 1868*



# THE BRITISH FARMER'S MAGAZINE.

NEW SERIES.

VOL. LV.

1868.

NO. CXXVIII.

PLATE I.

MR. CLARE SEWELL READ,

ONE OF THE MEMBERS FOR EAST NORFOLK.



THE FARMER MEMBER—a title which he has so honourably earned for himself—is a farmer born and bred. He is a native, moreover, of the county which he represents, with Ketteringham as the place of his birth, and 1826 as the year. He was, too, home-educated at the ordinary commercial schools until the 15th year of his age, when he went into the study of agriculture under his father, who was then farming some 1,300 acres of land. With five years' experience in this way, Mr. Sewell Read considered himself sufficiently well grounded to undertake the management of a large farm in Pembrokeshire, on the Orielson property, and held on lease by Colonel, now Sir Hugh Owen, and Mr. Herbert Kinderley. He continued here until 1850, when he accepted the appointment of agent and steward to Lord Macclesfield on the Oxfordshire estates around Shirburn Castle. After four years more thus occupied Mr. Read returned to Norfolk, and "set up for himself" at Barton Bendish, where, however, he only remained for two years. In 1857 he changed farms with his father, and entered upon the Plumstead House occupation, which in turn he gave up at Michaelmas, 1865, and removed to Honingham Thorpe, where he holds a farm under Lady Bayning. Mr. Read, senior, died as a tenant of Sir Hanson Berney at Barton Bendish.

From his very outset in life, Mr. Sewell Read had distinguished himself as a young man of much practical ability and proportionate promise. During his brief residence in Pembrokeshire he wrote the prize essay on the farming of South Wales for the

*Journal of the Royal Agricultural Society*; and, with his hand once in, he followed this up with two more prize reports, while at Shirburn, on the farming of Oxfordshire and of Buckinghamshire. A year or two after his return, he supplied by special request to the *Royal Journal* an article on the recent improvements in Norfolk farming, which serves as a kind of appendix or continuation of Bacon's elaborate essay, written some fifteen years previously. Mr. Sewell Read's career may consequently be followed by these papers, which it is scarcely necessary to say are amongst the most valuable contributions to the Society's *Journal*. But Mr. Read has been before the public in other ways. So far back as 1848, when only just of age, he acted as a judge at a meeting of the Pembrokeshire Farmers' Club, and again at the show of the Carmarthenshire Agricultural Society in the year following. In his own county he has also been in office, chiefly, if we remember aright, over the polled milking stock; but it is as a judge of implements at some of the more severe trials of the Royal Agricultural Society that Mr. Sewell Read's authority has been established. No more conscientious man ever accepted office, and none ever worked harder in the performance of his duties. He was in this way a man after Mr. Fisher Hobbs' own heart, and often would the steward speak to the pluck with which the young judge stuck to his work. Mr. Read first came out at Carlisle in 1854, and, beyond his labours in the field or the yard, he was mainly instrumental in preparing the reports. He has, indeed, been at times very ready with his pen

OLD SERIES.]

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[VOL. LXIV.—No. 1.]



through other channels—such as the *Mark Lane Express* and the Norfolk papers; while beyond his own proper business as a farmer he has had some considerable experience as a valuer and land-agent, having previous to his election been extensively employed in his own county and other parts of England.

With such a character to go on, no wonder when at the election in 1865 the farmers of Norfolk resolved to have a man of their own to represent them, they looked naturally enough to Mr. Sewell Read; but he was very loath to come forward, and his nomination was only determined upon at the very last moment. Nevertheless he was returned, free of expense, by a majority of a thousand votes over a brother of the Lord-Lieutenant and a son of the famous Mr. Coke of Holkham. "The Repeal of the Malt-tax" and "A Farmer for Farmers" were the rallying cries of his committee, with whom party politics did not go for much; nevertheless, Mr. Read was supported by the great body of the Conservatives, backed by a few Independents. On the hustings he announced himself as a Liberal-Conservative, explicitly stating his belief that "more extensive and beneficial reforms would be passed by the Conservatives than would ever be obtained from a Whig Government," characterizing the latter, then in office, as "such sleepy Tories in power, and such thundering Radicals in Opposition." During the time he has been in Parliament he has pretty generally followed up this declaration, as he may be considered a supporter of the Ministry, although he has never hesitated to declare against them, either in or out of the House, when he has thought they have been neglecting the claims of the agricultural interest, or making a mere stalking-horse of the farmer to serve their own purposes.

Mr. Sewell Read, in fact—as he himself has said, on the same showing as the Noble Lord who sits for Arundel because he happens to be a Roman Catholic represents two millions—may be supposed to represent all the tenant-farmers. And never was such a responsibility more bravely borne, as never has there been a greater success. From all quarters and by all sides alike is Mr. Sewell Read's position "as one having authority" recognised. Mr. Gladstone on one occasion went almost out of his way to speak to the merits of the honourable member for East Norfolk, as "one whose modesty was only equalled by the ability which he displayed, and the knowledge he manifested of every subject he took in hand."

Mr. Sewell Read's name is not continually to be found as figuring in the debates, but he never speaks without commanding attention, and is never absent when the interests of his large body of constituents call on him to be present. There is a simplicity in his manner, a want of anything like straining after effect, that is of itself effective; while his bearing, as free from pretension as from any mock humility, carries with it all the weight of self-respect and true dignity. An honourable gentleman, who possibly like Mr. Read, found himself somewhat to his surprise in the House of Commons, complained to his friends, after an experience of two or three years, that he never had anything to do, and had never been put upon a Committee. Mr. Read's complaint would, we fancy, be rather in the other direction, and we have had some opportunity of seeing how hard he works. Of course, he is on every committee at all connected with his own pursuits—the Malt-Tax, the Foreign Cattle Market, the County Finance, and so forth; as he was very early called to act upon an Election Committee, was one of the most active of the Cattle-Plague Commissioners, and has had daily to encounter a correspondence the extent of which may be imagined now that the farmers of England are taking to political life with only one man to represent them. Let us just say further that beyond his Parliamentary duties and their "contingences" Mr. Sewell Read is at this moment the chairman of the Farmers' Club, the vice-president of the Chamber of Agriculture, a member of the Council of the Royal Agricultural Society of England, a member of the Council of the Smithfield Club, president of the Norfolk Chamber of Agriculture, chairman of the Norfolk Cattle Plague Association, with no doubt an &c. &c. that is accumulating almost as rapidly as the nails in the famous horse-shoe problem.

It is a delicate topic to touch on, but one so creditable to all concerned, that we shall venture to do so—Mr. Sewell Read's committee proposed not only to pay all the election, but also their member's Parliamentary expenses. This offer was respectfully declined, but a considerable sum remains in hand towards defraying the cost of the coming election. There should be, we trust, no doubt as to the result of this, as scarcely anything more untoward could occur to the cause than that in the Senate the services of Mr. Sewell Read should be lost to agriculture.

## PLATE II.

## ON THE FLAGS.

Perhaps the best joke of all at that Islington Exhibition happened just when the hubbub was at its highest—when the bell was tolling, the people hurrahing or hooting, the horses refusing, and the Judges and other authorities getting in each other's way. Just then, two or three distinguished, but much perplexed foreigners were also discovered within the magic circle—gentlemen who, it appeared, had been sent over “special” to see for themselves how such a show should be conducted. If they can but carry back with them the notion in its entirety, surely all Paris will go into ecstasies over the tuneful gongs, the give-and-take jumps, the “get-ready” telegrams, and the wild rushes of the riders. Such a scene must have been “made” for a Frenchman!

And we alas! have seen Yarm and Middlesboro', and Guisbro', and Redcar, where the horse and the hound show lacked all this mosaic setting, and yet what delightful days those were! It was a study, and a quiet study too, to watch men like Mr. Williamson, Mr. Milbank, Captain Percy Williams, and Sir John judge hounds, with the crack huntsmen of England, headed by Tom Sebright and Treadwell, judging the Judges, as they brought out a couple of promising puppies, or

Ben Morgan 'ticed the old bitch to straighten herself before them. And then some one would draw out his tape, while a friend from the side would greet him

“With line and rule works many a—swell;  
Good morning, sir!”

“Three hours on the flags,” says Mr. Vyner, “may be very agreeably spent by a real sportsman, but it is a sad bore to one who is not an admirer of the symmetrical.” Our own impression, however, is that the Yorkshire Hound Shows, under the conduct of a sportsman like Mr. Parrington, have tended more than anything else to make men admirers of the symmetrical; or, in other words, to take a real interest in hounds. There will be the now annual show in the first week in August at Wetherby; to be held in association with the Yorkshire Agricultural Society, but no longer on the same ground, as it was found that the hounds were, if anything, rather too attractive a feature, so that, what with horses and hounds, the implement makers more especially were left in the cool shade. For our own part, we have long continued to urge the adoption of the present arrangement as the more preferable.

## GREEN MANURE.

BY CUTHBERT W. JOHNSON, F.R.S.

Green manure was almost the first used of fertilizers. As soon as man began to till the earth he turned into the soil the plants with which it was tenanted. It was only when by successive crops he had impoverished the land, that it became necessary to find some additional means for restoring its fertility. Some of Dame Nature's hints would soon lead to the employment of green crops as a manure. The gradual formation of beds of peat, in the hollows of even the most barren soils, would naturally suggest to the early cultivator that certain plants had the power of deriving almost all their support from the atmosphere and from water; it would then become a question as to which of these were the best able to thus rapidly supply themselves with that requisite nourishment.

Now, the earliest of agricultural writers, whose works have escaped to us, allude to the cultivation, as a green manure, by the Italian farmers, of the lupine. This plant grows well even on exhausted soils, and, when in

flower, is still ploughed into the soil by the farmers of Italy as a green fertilizer. For the same purpose the farmers of some districts of England cultivate the buckwheat, a plant which will grow on impoverished soils; in other districts they plough-in a crop of coleseed, which, like the lupine and the buckwheat, derives a more than an ordinary supply of its nourishment from the atmosphere. On almost all the sea coasts of our islands the green sea-weeds are eagerly collected by the farmers, and employed as a manure; and in some districts the leaves of our root crops are as carefully and as beneficially ploughed into the soil; we also learn from Liebig that in Germany the best results have been obtained from manuring the vineyards with the outtings of the vine. “The branches are cut from the vine in July or August, whilst still fresh and moist. If they are then cut into small pieces and mixed with the earth, they undergo putrefaction so completely, that, as I have learned by experience, at the end of four weeks not the smallest trace of them can be

found. Some cut them in small pieces and hoe them into the soil." (*Organic Chem.* 213.)

Still, we are all aware that green manures have never been generally or systematically used; for, as I have on another occasion remarked, the agriculturist has ever been more desirous of employing as food for his stock the vegetable produce of his land, than to bury it in the earth to promote the future productiveness of the soil. Yet whenever green succulent substances, such as weeds, river collections, sea-weed, &c., have been used, the result has almost always been satisfactory. The putrefaction of the vegetables, and the gases in that case emitted, appear to be on all occasions highly invigorating and nourishing to the succeeding crop. During this operation the presence of water is essentially necessary, and is most probably decomposed. The gases produced vary in different plants—those which contain gluten emit ammonia; onions, and a few others, evolve phosphuretted hydrogen; carbonic acid gas and hydrogen gas, with various vegetable matters, are almost always abundantly formed. All these gases, when mixed with the soil, must be very nourishing to the plants growing upon it. The observations of the farmer assure us that they are so. He tells us that all green manures cannot be employed in too fresh a state; that the best corn is grown where the richest turf has preceded it; and that where there is a good produce of red clover, there will assuredly follow an excellent crop of wheat; he finds, also, when he ploughs in his crop of buckwheat to enrich his land, that this is most advantageously done when the plant is coming into flower. The chemical explanation of these practical observations is not difficult. "All green succulent plants," said Davy, "contain saccharine or mucilaginous matter, with woody fibre, and readily ferment; they cannot, therefore, if intended for manure, be used too soon after their death. When green crops are to be employed for enriching a soil, they should be ploughed in, if it be possible, when in flower, or at the time the flower is beginning to appear; for it is at that period that they contain the largest quantity of easily-soluble substances, and that their leaves are most active in forming nutritive matter. Green crops, pond weeds, the parings of hedges or ditches, or any kind of fresh vegetable matter, require no preparation to fit them for manure. The decomposition slowly proceeds beneath the soil, the soluble matters are gradually dissolved, and the slight fermentation that goes on, checked by the want of a free communication of air, tends to render the woody fibre soluble, without occasioning the rapid dissipation of elastic matter. When old pastures are broken up and made arable, not only has the soil been enriched by the death and slow decay of the plants which have left soluble matters in the soil, but the roots and leaves of the grasses living at the time, and occupying so large a part of the surface, afford saccharine, mucilaginous, and extractive matters, which become immediately the food of the crop, and the gradual decomposition affords a supply for successive years" (*Agricultural Chemistry*, p. 280).

But the question still remains to be more clearly answered, How do certain plants, instead of impoverishing the soil on which they grow, add, if ploughed into it, carbonaceous matters? Now, to this point Professor Voelcker has not long since directed his attention. He tells us (*Journ. Roy. Ag. Soc.*, vol. xxv., p. 532) that "we have abundant proof that it is chiefly the carbonic acid of the atmosphere that supplies the carbon of plants, or, in other words, the great bulk of all vegetation. It is calculated, indeed, that at least three-fourths of the dry substance of plants is derived from the carbonic acid of the atmosphere. During the day-time the absorption takes place continuously; and no sooner have the leaves absorbed carbonic acid than they set about the work of de-

stroying its form, assimilating the carbon, manufacturing it into starch, gum, sugar, and other combinations found in all vegetable productions, and at the same time throwing off the oxygen, so as to restore the balance."

"And," continues the Professor, in another portion of his valuable Essay, "the observations I have hitherto made all tend to show the direct influence which the atmosphere has in the nutrition of plants; but there is another part which it plays in the growth of vegetables, which, though it may be called the indirect one, is so great in its effect, that we may say positively that all soils which are not penetrated by air are unproductive, no matter how much food they may otherwise contain. Cases are constantly brought under my notice, of soils, sent for examination, which are characterised as unproductive, but turn out to contain an abundance of all the mineral constituents required for the growth of plants, and require only to be thoroughly penetrated by the air in order to furnish an unlimited quantity of food. The atmosphere really exercises a most beneficial effect both on the inorganic and organic constituents of the soil. I have alluded to the large quantity of carbonic acid present in the air which exists in the interstices of the soil, but this supply cannot be produced unless the air finds its way into the soil. An excess of organic matter in the shape of decaying roots or leaves is so injurious, that where it exists in soils which are not easily penetrated by air it would be much better for it to be burnt altogether away. At first sight this may appear to involve a great waste of useful material in clay soils; but if the beneficial effect be greater than the sacrifice, it can scarcely be called a waste; for although serious doubt has been entertained respecting the utility of burning, some soils are with so much difficulty penetrated by air, that burning is the only way of destroying the organic matter, which when present in an imperfectly aerated condition is rank poison to most cultivated plants. It is certain that the destruction of sour humus, as it has been called—though in a chemical point of view all humus is acid—has been attended with most beneficial effects, and when recourse cannot be had to proper means of aëration, this destruction has been practised with great advantage to the succeeding crop, even if, as in the case of turnips, it would be otherwise benefited by the presence of carbonaceous matters in the soil. When, however, we can effect the destruction of organic matters by the atmospheric oxygen, the practical result, I have no doubt, will be greater; for not only does the air, and more especially the atmospheric oxygen, act upon the organic matters in producing carbonic acid, but it also has an important effect upon them in producing nitrates in the soil.

"We see then that it is not only from the atmosphere by their leaves, but from the soil by their roots that plants derive their supplies of carbonic acid gas. Some time since, M. Boussingault made some very careful experiments upon the amount of carbonic acid which occurred in soils, and he found that whilst the atmosphere that rested upon the soil only gave four to five in every 10,000 parts, the air in the soil contained, in sandy soil recently manured, 217 parts of carbonic acid in every 10,000 parts. Shortly after rain, the air from the same soil was again analyzed, and was found to contain as much as 974 parts of carbonic acid; evidently showing that the wetting of organic matter, and the rapid decomposition which through contact with the porous earth had taken place in organic matter had led to the destruction of the humus, and the formation of large quantities of carbonic acid. This threw some light upon the very startling growths sometimes noticed, especially with regard to root crops. They knew how very rapidly young turnips started after a good shower of rain, if the land had been

well dunged, arising from the rapid production of carbonic acid in the soil. They looked in vain for this result in soils which had not been properly cultivated. The quantity of organic nitrogen in the soil is very large.

"Some years ago," adds the Professor, "I made an experiment with the view of ascertaining how much nitrogen was present after the clover crop had been removed; and I ascertained that, taking an acre as the experimental area, it was equivalent to rather more than the amount of nitrogen present in 8 cwt. of Peruvian guano. It has been found that the clover crop is the most excellent preparation for the succeeding wheat, and it is known now as a fact, that after growing a good crop of clover a very large amount of root is left in the soil."

The primary question in ploughing-in a green crop is of course the profit compared with consuming it by live stock. This inquiry has been carefully considered in three papers, which are contained in the recently published number of the Journal of the Royal Agricultural Society (vol. iv., pp. 99, 103, 107, N.S.), by Messrs. Peter Love, G. Murray, and W. E. Wright. Another use of one green crop—the white mustard—when ploughed into the soil, has been described by Mr. Love, viz., its action as a smothering crop, for the cleansing of foul clay soils.

As regards the comparative profit of green crops used as a manure, and as food for stock, Mr. Love observes (*ibid.*, p. 99):

"Thirty years ago the ploughing-in of green crops was more studied and practised than at the present, the introduction of guano, nitrate of soda, &c., and the extraction of fertilisers from refuse of every description by the aid of chemical science having since then done much to meet the wants of the farm. The high price of meat has also induced the farmer to consume all his green crops by stock.

"I remember that it was pretty generally recognised among intelligent farmers, that the ploughing-in of 18 tons of turnips per acre, after being crushed by a clod-crusher, gave 12 bushels of barley more than if the said turnips had been first passed through the animal, and the elements to form mutton and wool extracted; it is also pretty certain that a ton of turnips will produce 14 lbs. of mutton, and about 1 lb. of wool; but the outlay on sheep, risk of losses, and cost of attendance, must be taken into account.

"I have only once tested the difference of carting all off, feeding on, and ploughing-in turnips; this was early in 1842, when beef and mutton sold by the carcase at from 4d. to 6d. a-pound, and roots were superabundant.

"A 12-acre field of light loam subsoil, the Northampton ironstone, had been manured with about 16 tons of good fresh farmyard manure per acre, ploughed in 10 inches deep during the winter, with about 5 inches of wheat stubble, afterwards thrice cultivated in the spring, harrowed and rolled, then ridged-up, and two quarters of bone-dust (well fermented after wetting with urine) drilled-in per acre under the seed; the produce was a little over 18 tons of turnips per acre. The crop on 3 acres was all carted off the land, that on 7½ acres eaten by sheep, and that on 1½ acres crushed with a Crosskill's clod-crusher, then harrowed across the rows, re-crushed and ploughed-in 6 inches deep. The part eaten off was ploughed only about 3 inches; that where the turnips were drawn 6 inches; the whole was sown with oats, and produced as follows: where turnips were drawn, within a peck, under or over, of 7 quarters; where eaten, 9 quarters; where ploughed-in, over 11 quarters per acre. Each piece was carefully kept by itself, and all thrashed the same week, and sold to the same man, on the same day, at £1 per qr. They were harvested without wet, and weighed 41 lbs. per bushel.

"If we can accept the result of this one experiment, it tends to show that the virtue of the manure left in the excreta of the sheep is about equal to what is expended on making mutton and wool besides maintaining the animal's heat and existence. If we take the two quarters of oats as a fair equivalent to the 12 bushels of barley before mentioned, it follows that the entire manurial value of 18 tons of turnips ploughed-in is equivalent to 24 bushels of barley, or 32 of oats; or if these are valued respectively at 32s. and 24s. a quarter, is £4 16s. for £18 tons, or about 5s. per ton; or 2s. 6d. per ton for the excreta left by fattening sheep.

"Swede turnips, apart from their value as feed, are not well suited for ploughing-in as manure; they do not rot down well, though they be smashed with mallets. The clod-crusher will not break them, and the tops will strike root and grow, if any part of the crown of the bulb is left adhering to them.

"The results obtained," continues Mr. Love, "by ploughing-in turnips in 1842 induced me to try white mustard in 1843, on a small field of 8 acres; soil a stiff poor clay, upon blue lias clay subsoil, as foul with twitch as possible; it was ploughed about 7 inches deep in the winter, then scarified with broadshares about 8 inches deep the last week in March, and after being well harrowed, sown with white mustard-seed by a broadcast seed-barrow, at the rate of a bushel to 3 acres, covered in by very light seed-harrows. This crop was just breaking into bloom the last week in May, and 26 inches high, when it was ploughed-in about 4 inches deep, and 100 bushels of lime (after being slaked with salt and water) applied per acre; then after one turn of the Norwegian harrow, re-sown with mustard, care being taken that all ploughed-in within the day should be re-sown on the same day it was ploughed; all was finished on the last day of May.

"On the 8th of July we began ploughing-in 6 inches deep this second crop, which was above 46 inches high. About accomplishing this I had some misgivings at first, but managed it well by attaching a heavy block of wood, 12 inches wide, 18 inches long, drawn by a chain attached to the large whippetree, and dragged just under the plough beam, a few inches in advance of the coulter. This further served to regulate the depth instead of a wheel. We had also the usual drag weight and chain to lap the whole under the furrow. About six furrows at the last must be done with the horses at length, or else when the land horse returns on the same track as he went, he ricks and entangles the long stems so together that they lap round the coulter and choke the plough, causing much trouble, and making the work rough and untidy: by putting the horses 'at length' there is no trouble, except with the last two furrows. Immediately after ploughing we gave one turn of the Norwegian harrow, then re-sowed the mustard as before. The whole field was finished on the 12th of July.

"The third crop was just breaking into bloom on the 24th of August, and the length above 5 feet; this was ploughed-in 8 inches deep, with four horses at length, followed by a two-wheel presser, following only one plough, thereby giving each furrow a double go. After one turn of the Norwegian harrow, the land was left to settle down for the future wheat crop. As for the couch grass, except a few blades in the first crop of mustard, we saw no more of it, except the rotten roots, as we were ploughing the last crop in. After one turn of the Norwegian harrow in the first week in October, the land was drilled with two bushels of red wheat per acre, a light harrow following, then twice rolled with Crosskill's heaviest crusher: it was crushed again in March. The produce at harvest was all that any man could desire, and



perfectly clean. After one 8-inch winter ploughing, and a shallow scarifying in the following March, it was drilled with white oats and clover seeds; the crop of oats was magnificent, and in some parts injured the seeds. Thenceforth this field, which had borne a very bad character, behaved as well as the best. During the succeeding seven years of my occupation of this farm, if I had to deal with any piece of very foul strong land, I cleaned it in this way; but if it was moderately clean, I consumed the mustard with store sheep and lambs. Mustard crops grown after those eaten off will not be so heavy, but with a very little corn or cake they will keep from 16 to 24 sheep per acre, half ewes and half lambs, from the middle of May to the end of August, or even later. The ewes (or stores) should follow the lambs in a separate pen; a fresh piece should be given every day, and the piece fed off should be ploughed and sown the same day, because in dry seasons whenever the land is naked the moisture is soon dried up; thus there will be a regular succession, and also the almost certainty of a plant.

"The application of 1 cwt. of nitrate of soda to the first crop will almost double it, and, of course, much increase the two following crops, as well as their power to smother the twitch or other weeds. I know several persons who have made attempts at this system, but through dilatoriness in ploughing and re-sowing have failed to obtain a regular plant. I believe the Norwegian harrow to be indispensable to success, because it thoroughly pulverises the soil at once, so that lengthened exposure of the different surfaces is avoided, and much moisture saved that would be lost by repeated harrowing and rolling. If in a wet season rains falls and delays the sowing after any part is ploughed, this delay gives the half-dead twitch time to revive before the smothering influences of the next crop can overpower it; so that in either wet or dry seasons the mainspring of the whole system is promptness and punctuality in performing every part of the work thoroughly well, with the least possible mauling of the soil, so as neither to make dust in the one case, nor mortar in the other.

"I need scarcely say that trifolium, tares, trefoil, Italian ryegrass, or any other forward crop may be grown as a first crop; and after this is fed off, two crops of mustard may still be obtained either to eat off or plough in. The difficulty, nay, almost impossibility, of cleaning strong land in a wet season is well known to all practical farmers. Now I venture to affirm that the foulest and poorest possible piece of land (sand, perhaps, excepted) may be cleaned by growing white mustard, with 1 cwt of nitrate of soda per acre applied to the first crop, and three crops in succession ploughed-in, as before stated, let the season be either wet or dry. The soil will be left as capable of bearing a crop as if 20 tons of farmyard manure had been applied to a bare fallow.

"Whether sandy land, the natural parent of couch-grass, could be cleaned in this way I do not know; but I do know that all bog, fen, or peat, light gravel, or loam, and all clays can. It is almost superfluous to contrast the expense of this system against that of the bare fallow: but the case may be roughly stated as follows:

Cost of an acre of bare-fallow manured with 20 tons farmyard manure.

March ...	Winter ploughing ...	...	£0 12
April ...	Scarifying and harrowing ...	...	0 4
April ...	Cross-ploughing ...	...	0 12
June.....	Summer ditto ...	...	0 10
July .....	Three scuffings, &c. ...	...	0 12
August...	20 tons dung and applying ...	...	5 0
August...	Ploughing-in dung... ..	...	0 12
			<hr/>
			£8 2

An acre producing three crops of White Mustard and ploughed in, &c.

March ...	Winter ploughing ...	...	£0 12
March ...	Scarifying, harrowing, and sowing, ...	...	0 5
May .....	Ploughing-in and re-sowing ...	...	0 17
July .....	Ditto ditto ...	...	0 17
August...	Ditto 8 inches deep ...	...	0 16
August...	Pressing and Norwegian harrow ...	...	0 5
	1 bushel mustard seed ...	...	0 15
	1 cwt. nitrate of soda ...	...	0 16
			<hr/>
			£5 3
Saved by this system ...			£3 19
			<hr/>
			£8 2

"When land is partially cleaned in the autumn, it may be perfectly cleaned and manured by growing three crops of mustard, to be folded; an acre will then keep an average of 20 sheep for 15 weeks, which will give a result as follows:

WHITE MUSTARD.		DL.
Cost of autumn cultivation ...	...	£1 0
Ditto as above for three crops ...	...	5 3
		<hr/>
Total cost of cultivation ...	...	£6 3
CONTRA.		DL.
20 sheep kept 15 weeks at 4d. a week each...	...	£5 0
Value of excreta left ...	...	3 10
		<hr/>
Gross return ...	...	£7 10
Cost of cultivation...	...	6 3
		<hr/>

Leaving to meet rent and taxes a balance of £1 7

"I therefore conclude that plants when at their greatest green bulk are worth about 5s. a ton to plough-in as manure, and if palatable for stock, they will make about 14 lbs. of meat, and the excreta left will be worth, as manure, about 2s. 6d. per ton of food consumed."

I have thus given nearly the whole of Mr. Peter Love's practical observations: his details of errors to be avoided, and of advantages to be reaped by the use of green manures on certain soils, will well repay the reader for a careful study. The agriculturist, I repeat, will note that we are here again treading in Nature's footsteps; it is by feeding on the carbon diffused in the atmosphere that the little plants attached to bare rocks or on the most barren soils support their existence, and by their death and decay gradually adding to the soil, the carbon which they derive from the atmosphere render it capable of supporting far larger and more valuable crops. Davy long since described the gradual formation of a soil in this way. After tracing the slow decomposition of a granite rock by the action of the atmosphere, he remarked that as soon as the smallest layer of earth is thus formed on the surface of the rock, the seeds of lichens, mosses, and other imperfect vegetables, which are constantly floating in the atmosphere, and which have made it their resting-place, begin to vegetate: their death, decomposition, and decay afford a certain quantity of organizable matter, which mixes with the earthy materials of the rock. In this improved soil more perfect plants are capable of subsisting; these in their turn absorb nourishment from water and the atmosphere, and after perishing contribute other materials to those already provided. The decomposition of the rock still continues, and at length, by such slow and gradual processes, a soil is formed in which even forest trees can fix their roots, and which is sufficiently fertile to reward the labours of the husbandman.

## THE NORFOLK AGRICULTURAL ASSOCIATION.

## MEETING AT DOWNHAM MARKET.

After a long lapse, the Norfolk Society was first again in the field at Fakenham with an agricultural show in its entirety; and it has this season just celebrated the most successful exhibition of its order that has yet been held. The far-west meeting of the West of England Society at Falmouth was comparatively a failure; the Berkshire and Hampshire gathering at Winchester depended mainly on the sheep for its merits; while the Islington Horse Show is too directly identified with the mountebank business to ever reach the dignity of a national institution of the kind we contemplate. Not that the illustration offered us at Downham was by any means perfect in its way. There were some sections of the show just as weak as there were others strong. Amongst the sheep and pigs, for instance, although there were many individual entries of much excellence, there was often little or no competition. Lord Walsingham, for one, has been advised, as he says—and badly advised, too—not to run for the first heat; in other words, his lordship cannot afford to exhibit any of his famous South-downs at his own county meeting because he intends exhibiting some of them at the Royal Meeting at Leicester. Surely, with the numbers they must have to pick from at Merton, this only proves a sad want of pluck. But let us go on to suppose, for the sake of argument, that Lord Sondes, Mr. Brown of Marham, and Mr. Hugh Aylmer declined to send their sheep to Downham because they will, as we believe, send some from their flocks subsequently to Leicester. What, under the influence of such very cautious tactics, would become of the Norfolk Show? Lord Sondes exhibited some very good Downs, his cup shearing being a particularly neat sheep, very true in his character, as bred from Mr. Webb and Sir William Throckmorton. But in two classes of rams there was only one single entry beyond his lordship's own—a shearing of Mr. John Overman's; and in the ewes, again, Mr. Overman and his Royal Highness the Prince of Wales, with a badly-done dark-faced pen, alone attempted to dispute the Elmham supremacy. The Down lambs, from want of roots or moisture, made pretty generally a very poor front, although Lord Walsingham mustered up courage enough to send one lot. With the Norfolk long-wools—or, as they are now called, Cotswolds—the contest was as usual confined chiefly to Messrs. Brown and Aylmer, although we are inclined to think that both may have better sheep kept back. Still Mr. Brown's ewes, bred from a ram of Mr. Robert Lane's, are particularly good sort sheep, and more uniform, indeed, than might have been expected. The Markham first-prize old ram has never been out before; but, to our thinking, he is a better-framed sheep than the second, that has won in his time, and was thought by many to be still the better of the two. In the other breeds, Mr. Henry Overman had the best of it with his Oxford Downs; but, despite the very limited competition, the real short-wools and long-wools went far to make the sheep-show.

It would appear that the Messrs. Sexton had this season a wonderful "growth" of pigs; and that their neighbour, Mr. Stearn, became cognisant of this very gratifying fact. But, as the Sextons have sold out early, and as Mr. Stearn did not enter, the pig prizes at Downham were left very much at the mercy of Mr.

Crisp and the Duckerings from Lincolnshire. Indeed, in the majority of the classes, there were no other entries, although Mr. Crisp varied the entertainment, so far as was possible, by taking one cup with a little black pig, and another cup with a little white pig, the Lincolns being more of course in the ascendant amongst the larger breeds, although they did send a Berkshire or two from Butley. But the merits of these pigs were in an inverse ratio to their numbers. Mr. Moon, and Mr. Moon is a judge, declared they were good enough to win in any company, as no doubt some of them have been doing already, and will do again. The Northropes are probably on the grand tour, and will in the course of the season see as much of this sort of thing as Mr. Thurnall, John Ward, or Mr. Sanday.

Mr. Sanday had scarcely elbow-room enough allowed him at Downham, and he did not look very happy in solitary confinement; but he got through his difficulties handsomely enough. There were only two really good animals amongst the sixteen or seventeen all-aged Shorthorn bulls; and these he placed first and second. The Cup bull, as the best of all the bulls. Mr. Lynn's prizeman, an own brother to Pamela, begins well with a good head and neck, and plenty of fine masculine character. Moreover, he both stands and moves well, being active enough, although very high in condition; he is short of coat, but of fine quality, and goes on to Leicester with every chance of some further notice. His second, Lady Pigot's Charles le Beau, looks little the worse for his long journey westward, and is a very taking animal at most points, but he wants the age to compete with the other. The best bull at Fakenham last year, and, as we then said, a very bad one at best, was quite out of it, although the chief labour must have been to find a third and a reserve. The Branches Rosolio had it still more his own way with the yearlings, where he, nevertheless, had to beat Mr. Martin's Hermit, that beat him at Wisbeach last summer. Hermit was now put quite aside, and the second prize awarded to a plain slack-backed beast of Mr. Kersey Cooper's, whose place did not say much for the other dozen in the class. Although fresh from her defeat down in the West, where the Shorthorn clearly flourishes, The Queen of Rosalia quickly righted herself in Norfolk, being at all points the best of her breed on the ground. And a sweet cow she is, with her kind head, round frame, broad back, and fine bone, so that the comparison with the second as they stood side by side was very emphatic. There were still plenty of entries here again, and Mr. Brackenbury took a prize and a commendation, and Mr. Gamble a commendation, and so forth. But Mr. Gamble does not get his stock up for show, and so of course he does not get prizes. Lord Walsingham's heifer in-calf was about the pick of the county, and very good indeed she is in places; but she is short, forward, and does not "set herself" to much advantage. Lady Pigot and Mr. Lynn come in again amongst the younger heifers, and it is very clear that, although some Shorthorn herds are being carefully cultivated in Norfolk, these have not yet made any great way.

The red Polled beasts were nothing of a show to that at Fakenham, and for choice we should have taken Lord Sondes' beautiful little

yearling heifer, as something very perfect alike for symmetry and character; but she was quite "out-paced" in her class, showing really as a yearling against animals some ten or eleven months older. Lord Sondes, indeed, had all the call here for quality, although we do not profess to say how far this goes in judging a polled milker. The Suffolks were well represented in perhaps the generally best class in the catalogue, that of cows in-calf or in-milk, where Mr. Walton, the only exhibitor beyond the confines of Norfolk, won with his old Favorite; but the competition in the other classes of polled stock was not great. Mr. Henry Overman still tries the Ayrshire cross, and with every reason, so far as the prize list of the other breeds can speak to the worth of this; while Mr. Wortley would appear to have taken to feeding Herefords in preference to Devons, and some very capital steers he has now in preparation. The fat stock, however, made a strong feature in the show, and what with Shorthorns, Poll-crosses, and Devons, should be heard of hereafter in the chronicles of the Smithfield Club. One of the best of these beasts, a fat cow exhibited by Mr. Durrant, and of the famous Shorthorn and Aberdeen "nick", was objected to, after having had the Cup awarded her for the best of all the fat cows, as having never had a calf; but we did not hear that she was disqualified.

The distinction drawn over the breeds of cart-horses is, like a few other features in the management of the Norfolk Society, somewhat eccentric. For example, the classes of cart-horses, that is to say cart-horses generally, are made to include Shires, Suffolks, and so forth, while the Norfolks have a section to themselves. Whereas at other shows the Suffolk chesnuts have a separate classification, and the bays and browns encounter, as they are no doubt occasionally crossed with, each other. We should not attempt to define a Norfolk cart-horse; but from their appearance should imagine that the breed is not kept very strictly to any one particular kind. The Committee put on Mr. Thompson, a Suffolk breeder, in the open classes, and he began courageously enough by reversing some previous decisions. Mr. Boby's Conqueror, the first prize Suffolk stallion at the Royal Bury Show, was never noticed at Downham, although Mr. Crisp's Captain, the second at Bury, was second again at Downham; and everybody seemed to think that Mr. Thompson was right, and that the Royal was wrong. But Mr. Thompson went a deal further than this, and gave not only the first prize of the class, but the Cup, as the best of his three classes of stallions, to Mr. Rist's Harwich Emperor, a horse that some time since was disqualified, by a veterinary surgeon, for side-bones. However, they do not recognize the office of a veterinary inspector at the Norfolk shows; and as the judge did not admit that the good-looking son of old Emperor ever had side-bones, of course he took all the prizes and medals and cups that his appearance otherwise so well warranted. His chief opponent, indeed, was not a chesnut, but a Shire colt in the next lot of three-year-olds; and it must have been a very near thing between the two; for Honest Tom has gone on improving since he won at Bury last year, and, although still rather a flashy horse, has a plenty of power, with quick action. He has never been beaten, we believe, until the Cup went against him here; but he had the credit of beating in turn the Suffolk President, the cup-horse of last season, when only a two-year-old. The stallions of this age at Downham were all Suffolks, as was the best mare, Mr. Walton's Violet, a son of Canterbury Pilgrim, and herself a Royal second. The cart-foals, either Norfolks, Suffolks, or Shires, were poor, as the want of rain must have told against their growth; but the Norfolk cart-mares made up a capital class, with two of Mr. Edwards', much of a muchness, first and second; and the

working pairs again were worthy of the county. It was the hardest part of Mr. Sexton's day's work to cull them; but he did so very satisfactorily, although they would have shown far better with more room to move in.

The same may be said, yet more emphatically, of the hackney ring, if it can be so called, in which really clever hacks and ponies swarmed in, one after and one alongside of the other, until it became a matter of much astonishment as to how Mr. Parson ever contrived to see half of them, let alone keeping clear of them. The entry of ponies between thirteen and fourteen hands was one of the best we have seen for some time past; and although the judge may have got to the two best of them, there were plenty still to pick from. The two classes of hacks were as good, and the two chesnuts in the over-fifteen hands lot, either for style or action worthy of their places almost anywhere, as first and second. In the next division, the fact that Mr. Badham's famous old grey Major could get no nearer than second, speaks something as to the excellence of his company; whilst amongst other old favourites, Mr. Robert Alymer's chesnut, at 24 years of age, was the second best broodmare, and Mr. E. Farrer's Little Wonder the best pony stallion. But the award over the stallions for saddle or harness, that is where the trotters came into competition, sent all Norfolk home again in sackcloth and ashes. There were Trotaways, Fireaways, Phenomena, and Quicksilvers. There were real show horses, that ran out as much line as a twenty-pound pike, and that lifted their legs to a continual chorus of *Hie, Hie!* and *Ho!* and *Ho!* And the prize alas! went away from all these to a handsome "real gentleman," with all the air and carriage of a thorough-bred horse, and with action as true and good as anything, if he did not make so much fuss over it. Sir Tatton Sykes bred him; he is by Fandango, out of Star by Bay Middleton, and Mr. Crisp has quartered him at Butley, to improve the breed of horses "for saddle and harness."

The best stallion in his own proper class, Sir Thomas Beauchamp's Aconite, is still handsomer, for he shows more blood, and what with his clean wicked head, light well-arched neck, and good back, is a really beautiful topped horse; while, as a rich brown, or black-brown, he would be sure to take about the country. Neither Mr. Stiggins nor the Abbot had a chance against him, although the judge hung terribly over his work. The four classes of hunters were pretty generally indifferent; but Mr. Gamble's old horse has earned his character in the field, and Mr. Sewell showed a very nice chesnut mare, that went too short and tender, or she might have stood higher. The weight-carriers were an under-bred lot, with one or two of them got by trotting horses, and the winner fed as high as a prize ox. He would have looked and gone all the better for a long sweat or two. The three and four year olds were but moderate, and we doubt if a dealer could have done much business in this way.

The implement show is mainly made up by local manufacturers and agents, with nothing beyond a few medals for distribution at the discretion of the judge, to whose awards the prize list will speak. Prominent amongst these awards was one for a combined straw-elevator and stacking machine, exhibited by Amies and Barford, that would promise to "take" on large farms. The dinner appears to have gone rather tamely, especially after the exciting speeches from the chairman and others at Fakenham. But although Sir William Bagge and Mr. Sewell Read were on the ground in the morning, they had to leave at noon, in order to be in time for the debate over the Foreign Cattle Market Bill, which, provokingly enough, never came on after all.

## PRIZE LIST.

## JUDGES:

Shorthorn, Cross-bred, and Fat Cattle.—W. Sanday, Holme Pierrepont, Notts.

Polled Cattle.—W. Horn, Debenham, Suffolk.

Cart Horses (except Norfolk).—W. Thompson, jun., Thorpe-le-Soken, Essex.

Norfolk Cart Horses.—G. M. Sexton, Wherstead, Suffolk. Thoroughbred and Hunting Horses.—S. J. Welfitt, Tathwell, Lincoln.

Harness Horses, Hacks, and Ponies.—G. F. Parson, Walldidfield, Suffolk.

Southdown Sheep.—H. Legar, Ingham, Suffolk.

Long-wooled Sheep.—W. Bartholomew, Waddington Heath, Lincoln.

Pigs.—J. Moon, Plymouth, Devon.

Implements.—T. Chambers, jun., Colkirk, Norfolk.

## CATTLE.

Shorthorn bull, £10 and silver medal, and cup value £10, J. Lynn, Stroxton, Lincoln (Prizeman); second, £8, Lady Pigot, Branches Park, Suffolk (Charles le Beau); third, £5, H. Aylmer, West Dereham (General Hopewell); commended, C. Beart, Stow Bridge (Forester).

Yearling shorthorn bull, £5, Lady Pigot (Rosolio); second, £3, G. Kersey Cooper, Euston (Hogarth the Second); highly commended, H. Aylmer (Prince Hopewell); commended, Wm. Goulder, Wimbotsham (Master Hopewell), J. How, Denver (Rapert).

Shorthorn cow, in calf or in milk, cup value £10, and £10 and silver medal, Lady Pigot (Queen of Rosales); second, £8, J. How, Broughton, Hunts (Jolly Queen); third, £4, W. T. Brackenbury, Shouldham Thorpe (Rosebud); commended, J. Gamble, Shouldham (Chance and Fame), W. T. Brackenbury (Lady Booth), and G. E. Frere, Roydon (Tibbie Tudor).

Shorthorn in-calf heifer, not above three years old, £5 and silver medal, Lord Walsingham, Mertou (Thoughtless); highly commended, G. E. Frere (Sugar Blossom); commended, T. Crisp, Batley, Suffolk (Dahlia).

Shorthorn heifer, in calf or in milk, under three years old, £6 and silver medal, Lady Pigot (Dame of Rosales); second, £4, J. Lynn (Aurora); highly commended, T. Crisp (Seraphine 5th); commended, J. Gamble.

Yearling shorthorn heifer, £4, J. How (Lady Anne); second, £3, Lord Walsingham (Daphne); highly commended, H. Aylmer (Phillis 6th).

Norfolk and Suffolk red polled bull, £10 and silver medal, and Downham cup value £10, B. Brown, Thursford, Norfolk (Duke); second, £8, Lord Sondes.

Yearling Norfolk and Suffolk red polled bull, £5, Lord Sondes; no second award.

Norfolk and Suffolk red polled cow, in calf or in milk, £10 and silver medal, S. Wolton, Newbourn, Suffolk (Favorite); second, £6, J. Hammond, Bale (Butler); third, £4, J. Hammond (Lady Davy); highly commended, J. Hammond (Moss Rose); the class commended.

Norfolk and Suffolk red polled heifer, in calf or in milk, under three years old, £6 and silver medal, W. Oliver, Docking; second, £4, B. Brown (Cherry); highly commended, Lord Sondes; commended, Lord Sondes.

Yearling Norfolk and Suffolk red polled heifer, £4, and cup value £10, for the best animal in the three classes, B. Brown, Hadsom; second, £3, Sir W. Jones, Bart., Cranmer Hall (Primrose); commended, Lord Sondes.

Polled cow or heifer, in calf or in profit, not being Norfolk and Suffolk red polled, premium of £5 and silver medal, H. H. Blomfield, Stoke Ferry (Handsome).

Horned cow, not being shorthorn, Devon, or Norfolk and Suffolk red polled, in calf or in milk, £5 and silver medal, H. Overman, Weasenham (Doat's Eye); second, £3, Captain Cating, Needham Hall, Cambridge; commended, W. Ellis, Wymondham (Rose).

Heifer, in calf or in milk, not being shorthorn, Devon, or Norfolk and Suffolk red polled, under three years old, £5 and silver medal, H. Overman (Kind); second, £3, M. Green, Roxham; commended, P. J. Sharman, Scarning (Victoria).

Yearling heifer, not being shorthorn, Devon, or Norfolk and Suffolk red polled, £3, G. M. Nicholson, Elmham.

Fat steer of any breed, above three years old, £8 and silver

medal, and cup value £10, B. Wortley, Suffield; second, £5, J. B. Aylmer, Fincham; highly commended, W. Coleman, Runhall; commended, W. Goulder.

Fat steer of any breed, not above three years old, £8 and silver medal, R. Wortley; second, £5, J. B. Aylmer; commended, J. How and E. Durrant, Wimbotsham.

Fat cow, above three years old, £5 and silver medal, and cup value £10, E. Durrant, Wimbotsham.

Fat heifer, not above three years old, £5 and silver medal, R. Wortley; second, £3, J. B. Aylmer; highly commended, W. Betta, Fincham, for two.

Extra Stock: Commended, P. J. Sharman, Scarning; highly commended, W. A. T. Amhurst (Bretonne Hereford bull).

## CART HORSES.

Stallion, not under four years old, £10 and silver medal, and cup value £10, I. Risk, Tattingstone, Suffolk (Harwich Emperor); second, T. Crisp (Captain).

Three-year-old stallion, £8 and silver medal, W. Welcher, Upwell, Cambridge (Honest Tom); second, £5, W. Wilson, Baylham, Suffolk (The President).

Two-years-old stallion, £6 and silver medal, C. Boby, Stutton, Suffolk; second, £4, W. Wilson.

Cart mare, cup value £10 and premium of £10 and silver medal, S. Wolton, jun. (Violet), second, £8, R. Gillett, Halvergate (Sprite), third, £4, J. Warth, Sutton, Ely (Diamond).

Three-years-old cart filly, £6 and silver medal, S. Wolton, jun. (Matchett).

Cart foal, £5 and silver medal, S. Wolton, jun.; second, £3, S. Delf, Christchurch, Upwell.

Fair of cart horses, whether mare or gelding, best suited for agricultural purposes in Norfolk, and which have been so used in the county for twelve months next before the exhibition, cup value £20 and silver medal, H. Overman; second, £6, the Executors of the late J. Smith, Crownthorpe; third, £4, J. Tingey, Ellingham.

Norfolk cart horses, stallions, not under four years old, £10 and silver medal, H. Overman (The Norfolk Lion); second, £7, T. Wright, North Ranton (The Norfolk Champion).

Three-years-old stallion, £8 and silver medal, cup value £20, J. B. Aylmer; second, £5, E. Gilbert, Blofield (Duke).

Two-years-old stallion, £6 and silver medal, C. Mainprice, Ely (No competition).

Mare, cup value £10, premium of £5, and society's premium of £5 and silver medal, C. Edwards, Stowe (Bounce); second, £6, C. Edwards (Pink); third, £4, E. Crowe, Denver; highly commended, J. B. Aylmer (Beauty), J. E. Groom, Congham (Jewel); and H. Overman (Brag).

Three-years-old colt. No merit.

Three-years-old filly, £6 and silver medal, W. A. T. Amhurst, Didlington; second, £3, J. Tingey (Brag).

Two-years-old filly, £5 and silver medal, F. Cambridge, South Ranton; second, £3, W. Blomfield, Stoke Ferry.

Foal, £5 and silver medal, the Executors of the late J. Smith; second, £3, J. Tingey.

Hunters, thoroughbred stallion, cup value £10 and premium of £10 and silver medal, Sir T. P. Beauchamp, Bart., Langley (Aconite); second, £6, T. Crisp (Abbot).

Mare or gelding, adapted for hunting, equal to 14 stones, £10 and silver medal, G. S. Hall, Ely (Little John); second, £5, J. Gedney, Ranton Holme.

Mare or gelding, adapted for hunting, not equal to carry 14 stones, £10 and silver medal, and the Prince of Wales cup value £20, J. Gamble (Pliable); second, £5, A. Hamond, Westacre (Tim).

Four-years-old colt or filly, adapted for hunting, cup value £10 and silver medal, T. Goold, Swaffham (White Stockings); second, £5, W. Goulder.

Three-years-old colt or filly, adapted for hunting, cup value £10 and silver medal, G. S. Hall (Young Sir Roger).

Harness horses, hacks and ponies—stallion for saddle or harness, cup value £20 and silver medal, T. Crisp (Fandangero); second, £10, T. L. Reed, Downham (Trotaway); third, £6, R. G. Beart, Raynham (Fireway).

Best riding mare or gelding, above 15 hands and not exceeding 15 hands and 3 inches high, £10 and silver medal and the cup value £10, S. Delf, Upwell, Cambs; second, £5, E. Durrant, Wimbotsham (Madeline).

Hackney mare or gelding, above 14 and not exceeding 15

hands high, £10 and silver medal, Rev. W. F. Thureby, Bergh Apton, Dagmar; second, £5, G. D. Badham, Bulmer Tye, Suffolk (Major); highly commended, J. Groom, Ashwicken (Topsy).

Brood mare, for saddle or harness, £8 and silver medal, R. Hubbard, Stow; second, £5, R. B. Aylmer, Westacre.

Entire pony, not under 12, nor above 13½ hands high, cup value £5, and silver medal, E. Farrer, Sporie (Little Wonder).

Pony, not under 13 nor above 14 hands high, £5 and silver medal, and cup value £5, R. B. Aylmer (Jack); second, £3, E. Larke, Wymondham (Duchess); highly commended, J. Warth, Sutton, Ely (Matchless).

Pony, not under 12 nor above 13 hands high, £5 and silver medal, J. J. Clarke, Swaffham (King of Hearts); second, £3, H. Bullard, East Carleton (Jacob).

Cob, showing the best walking and trotting action under a rider weighing not less than 15 stones, saddle and bridle included (height not less than 13½ hands, nor more than 15 hands), £10, and cup value £10, and silver medal, H. Martin, Littleport, Isle of Ely.

Extra Stock.—Commended, T. Wright, North Runcton (pony).

### SHEEP.

Shearling Southdown ram, £8 and silver medal, and cup value £10, Lord Sondes; second, £5, Lord Sondes.

Southdown ram of any age, £5 and £3, and silver medal, Lord Sondes.

Pen of five shearling Southdown ewes, £5 and silver medal, Lord Sondes; second, £3, Lord Sondes.

Pen of ten Southdown ewe-lambs, cup value £10 10s., and premium of £4 and silver medal, Lord Walsingham; second, £3, Lord Sondes.

Pen of ten Southdown wether-lambs, bred by the exhibitor, £5 and silver medal, Lord Sondes; second, £3, Lord Sondes.

Shearling long-woolled ram, £8 and silver medal, H. Aylmer; second, £5, T. Brown, Marham; third, £3, T. Brown.

Long-woolled ram of any age, £8 and silver medal, and cup value £10, T. Brown; second, £5, T. Brown; third, £3, H. Aylmer.

Pen of two long-woolled rams, £5 and silver medal, T. Brown; second, £3, T. Brown.

Pen of ten ewe or wether-lambs of any other breed, £5 and silver medal, J. Hammond, Bale; second, £3, J. Hammond.

Pen of two ram-lambs, not being long-woolled, bred by exhibitor, £4, and silver medal, J. Hammond.

Pen of three shearling wethers of any breed, £5 and silver medal, H.R.H. the Prince of Wales; second, £3, J. T. Ashley, Litcham.

Pen of ten ewes of any age or breed, £5 and silver medal, T. Brown; second, £3, T. Brown.

Pen of ten ewes of any age or breed, not being Southdown or long-woolled, £5 and silver medal, H. Overman; second, £4, H. Overman.

Pen of five shearling ewes of any breed, not being Southdown or long-woolled, £5 and silver medal, H. Overman; second, £3, H. Overman.

Pen of twenty shearling ewes of any breed, without restriction as to clipping, £5 and £3, and silver medal, Lord Sondes.

### PIGS.

Boar of large breed, £4 and silver medal, R. E. Duckering, Northorpe, Lincoln; second, £2, R. E. Duckering.

Breeding sow of large breed, £4 and silver medal, R. E. Duckering; second, £2, T. Crisp.

Boar of small breed (black), cup value £5, and £4 and silver medal, T. Crisp.

Breeding sow of small breed (black), £4 and silver medal, T. Crisp.

Boar of small breed (white), cup value £5, and £4 and silver medal, T. Crisp; second, £2, R. E. Duckering; highly commended, R. E. Duckering and H. Aylmer.

Breeding sow of small breed (white), £4 and silver medal, T. Crisp; second, £2, R. E. Duckering.

Three breeding sows of small breed (black), not exceeding nine months old, £4 and silver medal: no merit.

Three breeding sows of small breed (white), not exceeding nine months old, £4 and silver medal, H. Aylmer.

### IMPLEMENTS.

Silver medals to Amies, Barford, and Co., of Peterborough, for combined elevator—Hambling and Son, East Dereham, for self-feeding thrashing-machine—Barnes, Wells, for wall-tube—Le Butt, Bury St. Edmund's, for hand seed-drill—Hornaby and Son, Grantham, for turnip-cutter.

Highly commended: Corbett's combined blowing, windowing, and screening machine; Amies and Co.'s iron frame grinding mill and oilcake mill; Holmes' combined portable thrashing-machine; Woods and Co's horse-works; Wilkinson's self-regulating horse-hoe.

Commended: Sainty's sheep and cattle permanent or portable fencing; Woods' chaffcutter; and Hornaby's root pulper.

### THE DINNER.

was held on Thursday, when about two hundred attended. The chair was filled by the President of the Association, Mr. W. A. Tyssen Amhurst. In the course of the proceedings

Lord WALSINGHAM expressed the regret with which he had heard that their Members were not able to be present with them at that dinner; because they were all extremely anxious to come, and nothing but a very important measure which was in Parliament, and which concerned agriculturists, would have detained them. There was a bill before the House of Commons, which proposed to establish a market by the side of the Thames for foreign cattle, and for foreign cattle only; and it also proposed to provide that foreign cattle brought over here for the purpose of being turned into food should be immediately slaughtered, while if they were intended for store stock—of which not many would come, because they had very good stock of their own, and did not want to go to their neighbours, but supposing any should come for people who wish to have a particular species, such as Chinese sheep, of which he had some, or a Roman bull—they would have to undergo certain quarantine. The Metropolitan Market would then be left entirely free, and they would hope to get rid of all restrictions with respect to animals removed from the Metropolitan Market, so that their trade would be as free as it was before the incoming of that formidable disease, rinderpest; and they would not be in fear of any danger of having it re-imported into this country, for it undoubtedly came from abroad—from the Continent—and not only rinderpest, but pleuro-pneumonia and foot and mouth disease, through which they had lost such an enormous number of their fine, magnificent cattle, such as they had seen that day at the Show. He believed the only way of doing this was the way proposed; but he might tell them the bill would meet with great opposition, and it was somewhat doubtful whether it would be carried, and he was, therefore, sure they would feel, with him, that their members were doing their duty more thoroughly by attending the House to support this bill than by coming to enjoy themselves with them, as he was sure they would have enjoyed themselves. If he (Lord Walsingham) had not been able to show so many sheep this year as he had upon some former occasions, it was because the competition was so great; and he had been advised he ought to reserve his horses during the first heat, and so he had allowed his noble friend Lord Sondes to walk over the course, as he so well could do. They knew he was afraid of him; but he should have pluck enough to meet him at Leicester, where he should stand a better chance, from not having worked his horses too hard in the first heat.

Mr. J. S. WELFITT responded to the toast of "The Judges of Horses," and, in doing so, remarked that he thought it would be more satisfactory to the public at large, and would take considerable onus off the shoulders of one gentleman, if there were two judges another year.

Mr. MOON replied to the toast of "Judge of the Pig class," and expressed his belief that if the show had been larger the pigs that took the prizes would not have been beaten, as they were of such excellent character. He differed from Mr. Welfitt's opinion as to two judges, and thought one judge only was sufficient and best, because where you had one judge there was no calling in a third person: the judge was put upon his metal, and could not shirk. Where they had two or three judges, one might be told he had done wrong, and he could easily say that it was not his fault; the other judges did it, and he was obliged to give way. He was glad Norfolk had introduced the system of having but one judge, and hoped the course would be universally adopted.

Mr. WELFITT agreed with the remarks of Mr. Moon, and was in favour of all other classes except horses having but one judge. He said there existed a difference of opinion with respect to horses which did not exist with regard to other animals.

Mr. T. CHAMBERS acknowledged "The Judge of Implements," remarking that the principal novelty in the show-yard among the implements was "Norton's American tube-

well," which, he thought, in many cases would be of great value.

It will be seen that great difference of opinion exists as to the plan of single judges, many of the Committee of the Association being opposed to it, and a number of gentlemen who were invited to act in this way having declined to do so.

## THE THORNE AGRICULTURAL ASSOCIATION.

The sixteenth annual show has just been held, and in every point has proved more successful than any of its predecessors.

The section which excited the most interest was the horsering during the awarding of the prizes, and in this, especially in Yorkshire, most important department of the exhibition, the number of entries was very large, and the quality exceedingly good. The entries were no less than 60 in excess of last year, and included some very fine animals. The classes which attracted particular attention by their excellence were the hunters, roadsters, lady's hacks, and draught-horses, the latter calling forth praise from every side. In the class for two-year-old geldings or fillies for agricultural purposes, the prize was taken by a capital colt exhibited by Mr. S. Waterhouse, Doncaster. The whole class was a very good one, as was also the next one-yearling, hunting colt or filly. The collection was indeed so excellent that it was some time before the judges could decide. A beautiful little chesnut, by Wild Hero, was very much admired, the only fault being that he was too small. The first prize taken was by Heber, out of a mare by Era, exhibited by Mr. T. Perkins, Snaith, and the second, by Arribas, shown by Mr. R. Bulay, Hooton Pagnell. The two-year-old hunting geldings or fillies were also an excellent class, and the prize was taken by a magnificent one exhibited by Mr. Godfrey, but which had nearly been disqualified by being wrongly entered. For the prize in the three-year-old hunting, gelding, or filly class, there was a very good competition, and even the judges could not agree for a long time as to whether 187 or 171, both by Arribas, should take the first; finally, however, 171, shown by Mr. W. Glentworth, obtained the honour. In the competition for the silver cup, given by Messrs. Durham, Foster, and Shaw, for the best three-year-old gelding or filly for agricultural purposes, a famous lot of animals appeared; Mr. William Tennant, of Baslow, being successful in taking the first prize. The next class consisted of pairs of draught-horses, and here the quality could not be excelled. A couple of superb greys, one by John Bull, exhibited by Mr. Brierley, of Middleton, carried off the cup, and they were the admiration of all who saw them, the judges expressing an opinion that there could be nothing better. The silver cup for the best roadster nag or mare was taken by Mr. Winter, Goodoop; the cup for the best lady's hackney by Mr. G. Wakefield, Keadby; and for the best pony not exceeding 14 hands, by Mrs. Milward, Thurgarton. The extra stock contained one of the best horses on the ground; this was a gelding exhibited by Mr. J. Robson, Malton, and to it a first prize was awarded. Turning next to cattle, we may state this was the first show since the cattle plague, and was a very good one. Some useful bulls were shown, but it was in the cow class that the greatest excellence was to be found. Mr. Whittaker exhibited a very fine pair of heifer calves, which took the first prize, and in the sheep department he also took the silver cup for the best pen of long-woolled Leicester gimmers. The ewes were a very good class, and the show altogether excellent. For pigs the entries were not numerous, but the quality could not possibly be better. The competition, however, was confined to two exhibitors, Mr. John Dyeon, of Leeds, and Mr. R. E. Duckering, of Northorpe, who took all the first and, with one exception, all the second prizes between them. The show of dogs was really remarkable, and it is very seldom that such a collection is brought together. The extra prizes and the many "commendeds" which the judges bestowed come as quite a sufficient proof of their general excellence. One class in particular, the fox-terriers, were specially noticed, and Mr. J. Denton, of Doncaster, took the first prize.

## PRIZE LIST.

### JUDGES.

Horses—J. Robinson, Grove House, Manchester; T. Stamper, Highfield House, Oswaldkirk; T. R. Colton, Eagle Hall, Newark.

Beasts, Sheep, and Pigs—G. Bland, Coleby Hall, Lincoln; R. Foxton, Walburn, Kirbymoorside; T. Dodds, Mount Pleasant, Wakefield.

### IMPLEMENTS.

The best assortment of farming and other implements manufactured and exhibited by any one person.—1st, Vickers, Snowden, and Morris, Doncaster; 2nd, B. Sanderson, Thorne.

### HORSES.

Mare and foal for agricultural purposes.—1st, W. Tennant, Barlow; 2nd, M. Askern, Levels.

Mare and foal, hunting.—1st, H. W. Godfrey, Bank House; 2nd, M. Askern.

Mare and foal, carriage.—1st, M. Askern; 2nd, Messrs. Reynolds, Carlton; highly commended, T. Wakefield, Messingham.

Mare and foal, roadster.—1st, H. W. Godfrey; 2nd, J. Lee, Thorne.

Yearling colt or filly for agricultural purposes.—1st, F. T. Turner, Armthorpe; 2nd, J. Coulman.

Two years old gelding or filly for agricultural purposes.—1st, S. Waterhouse, High Ellers; 2nd, T. H. Goulton, Airmyn Grange.

Yearling colt or filly, hunting.—1st, T. Perkins, Snaith; 2nd, Bulay, Hooton Pagnell; highly commended, P. Dogherty, Airmyn.

Two years old gelding or filly, hunting.—1st, H. W. Godfrey; 2nd, J. Reader, Holme; highly commended, J. Kelsey, Garthorpe Grange.

Three years old gelding or filly, hunting.—1st, W. Glentworth, Goole; 2nd, H. Soer, Bawtry; the class commended.

Yearling colt or filly, carriage.—1st, W. H. Godfrey; 2nd, M. Askern; commended, H. Cooke, Carlton.

Two years old gelding or filly, carriage.—1st, H. W. Godfrey; 2nd, S. Waterhouse.

Carriage gelding or mare of any age.—1st, T. C. Glazier, Amcotts; 2nd, W. B. Houlden, Cantley; highly commended, W. Brockton, Tudworth; the class commended.

Yearling colt or filly, roadster.—1st, F. Long, Spofforth; 2nd, W. Whaley, Thorne.

Two years old gelding or filly, roadster.—1st, T. Baddiley, Hatfield; 2nd, E. Coulman, Plains House; highly commended, M. Durham, Thorne.

Three years old gelding or filly for agricultural purposes, a silver cup, value £5.—1st, W. Tennant; 2nd, G. Wood, Hayfield; highly commended, J. Bramley, Barlow; commended, J. Winder, Newton.

Pair of draught horses, of any age or sex, a silver cup, value £6.—1st, C. W. Brierley, Middleton; 2nd, Messrs. Crawshaw and Blakeley, Dewsbury; highly commended, R. Mickelthwaite, Thorne; commended, E. Coulman.

Draught horse, of any age or sex.—1st, W. Tennant; 2nd, J. Wood, Sykehouse; highly commended, J. B. Milman, Levels; commended, M. Askern.

Roadster, nag, or mare of any age, a silver cup, value £6.—1st, E. Winter, Goodoop; 2nd, G. Wakefield, Keadby; highly commended, R. Barker, Malton; commended, T. Wakefield, Messingham.

Lady's hackney, of any age or sex, a silver cup, value £5.—1st, G. Wakefield; 2nd, W. M. Darley, Thorne.

Pony, not exceeding 14 hands, silver cup, value £3 3s.—1st, R. Milward, Thurgarton; 2nd, W. White, Crowtrees.

Pony not exceeding 12 hands.—1st, E. Rogers, Rockley; 2nd, C. Dook, Levels.

Sucking foal by Gavazzi, a special prize.—1st, G. Gillatt, Doncaster.

Yearling by Antwerp, a special prize.—1st, J. H. Dean, Stainforth.

Sucking foal by Antwerp, a special prize.—1st, M. Askern.

EXTRA STOCK.—1st, J. Robson, Malton; commended, W. White.

### CATTLE.

Bull of any age.—1st, J. Mann, Sprothro'; 2nd, B. J. Whittaker, Hesley Hall.

Bull under two years old.—1st, G. Cattle, Hooton Levett; 2nd, J. S. Barn, Streethorpe.

Cow in calf or milk for daily purposes.—1st, — Dickinson, Partridge Hill; 2nd, B. J. Whittaker; commended, J. Sykes (Bramwith), J. Elliott (Levels), E. Barker (Pigburn), W. Brockton, J. F. Watson (Crowle Wharf).

Heifer in calf or milk, under three years old.—1st, B. J. Whittaker; 2nd, W. Brockton; commended, J. Aldam, Epworth.

Pair of calves, above 12 and under 18 months old.—1st, B. J. Whittaker; 2nd, J. Elliott.

Pair of calves, above 6 and under 12 months old.—1st, J. Coulman.

### SHEEP.

Long-woolled or Leicestershire ram of any age.—1st and 2nd, J. F. Moorhouse, Penistone; commended, J. Ingham (Marr), H. Poskitt (Darrington).

Shearling long-woolled or Leicester ram.—1st and 2nd, R. C. Workman, Almholme.

Five long-woolled or Leicester ewes, having suckled lambs until June 17, 1868.—1st, J. Winder; 2nd, E. Turner; commended, R. C. Workman.

Five long-woolled or Leicester gimmers, bred by the exhibitor within a distance of 20 miles of Thorne, a silver cup, value £5.—1st, B. J. Whittaker; 2nd, M. Astern.

Five long-woolled or Leicester wedders.—1st, L. Baxter, First Courtney; 2nd, R. Law.

Five lambs.—1st, H. W. Godfrey; 2nd, R. M. Waterhouse, Armthorpe; commended, J. Warriner, Wroot.

### PIGS.

Boar of the large breed.—1st, J. Dyson, Leeds; 2nd, R. E. Duckering, Northorpe.

Boar of the small breed.—1st, J. Dyson.

Sow of the large breed.—1st, J. Dyson; 2nd, R. E. Duckering.

Sow of the small breed.—1st, J. Dyson; 2nd, R. E. Duckering.

Sow of the middle breed.—1st, J. Dyson; 2nd, R. E. Duckering.

Three store pigs.—1st, R. E. Duckering; 2nd, E. T. Whaley.

Open gilt of any breed, not less than 6 or more than 12 months old.—1st, R. E. Duckering; 2nd, J. Dyson.

## THE NORTH-EAST AGRICULTURAL SOCIETY.

### MEETING AT BELFAST.

This annual show was held on Thursday and Friday, June 18 and 19. All the classes, with the exception of pigs, were good; and in that quarter the decline was in numbers, and not in quality. The show of Shorthorns and other distinct breeds of cattle and sheep was such as to do credit to any show in the United Kingdom for quality and breeding. There were forty-nine entries of Shorthorns of all ages. Six Shorthorned bulls, over two years old, competed in the first section, which ended in Mr. Ellison Macartney's four-year-old bull FitzJames being placed first; he comes from the now famous Castlegrave herd. Mr. Maxwell's Chancellor and Mr. W. Charley's Ulysses were second and third. The section for two-year-old bulls was made up of seven entries, Lord O'Neill's Lord of the Manor leading the way. Mr. Mulholland's bull Raven, by Ravenspur, was placed next, but he had a smart tussle with Mr. M'Crea's Northern Ensign, by Northern Chief; while Mr. Moody's Roger stood highly commended. There were 12 entries in the yearling bull section, the Marquis of Downshire's Marquis of Kildare, bred by Mr. Beynell, taking the lead, and also the Ulster Challenge Cup for the best animal in the short-horn classes. Mr. Maxwell's Prince Royal stood next; and the Earl of Dartry's Lamp of Florence, from the Ardert herd, made a capital third. An H. C. was given to Messrs. F. and W. Smith's Jemmy, a son of Fitzjames the Second. The male sections finished in the bull calves. The Earl of Dartry's Royal Butterfly—a beautiful white, only three months old—bred by himself, led off, followed by Mr. Ellison Macartney's White Rock, also bred by the exhibitor. The gem section of the show would be the cows of any age. The three prize ones were grand creatures, but of such different styles of sweetness and beauty as to render it most difficult and perplexing to place them, and the judges found it so; however, it ended in Mr. C. P. Les-

lie's Banshee being put first, his Lily of Warlabry third, and Mr. Maxwell's Anita second. Banshee, the first prize, is a grand cow of great substance, Lily of Warlabry is every inch a shorthorn, and Anita one of the sweetest and loveliest matrons we have seen. The three-year-old section contained but two, Mr. Mulholland's Elfin Dorrit being placed first, and Mr. Richardson, of Kircassock, second for Lady Frances. The two-year-old section contained three entries, Mr. M'Corkell's Rose of Warlabry, bred by himself, and Sir R. Bateson's Red Rose, bred by A. Warburton, Kill, being first and second respectively, Mr. George Callwell's Beauty the Sixth making a very handsome third. Four entries composed the section for yearlings—the Earl of Caledon's Countess, placed third at the last Dublin Royal, Mr. Maxwell's Princess Victor, and Mr. Charley's Princess Adelaide, being placed first, second, and third respectively. The Earl of Dartry exhibited a very nice heifer-calf, but there was no competition.

The northerners are great admirers of Ayrshires as dairy cattle. Six males and twenty-nine females, of all ages, were exhibited in the Amateur Class. They were well and purely bred, and, to all appearance, very suitable to dairy purposes. The Devons were the best we have seen for some time in Ireland, and numbered five males and ten females of all ages; and they are evidently favourites with those who possess them. The diminutive, yet profitable, Kerries numbered three males and three females; and Polled and Alderneys numbered but four of both sexes.

A new class has been opened for thorough-bred horses, which brought before the public on this the first occasion four very handsome well-bred gentlemen, and on the next occasion it is expected that this class will be yet better filled. In this, the Amateur Class, agricultural sires, mares, and other draught horses useful for general pur-

poes, were very well represented, numbering in the aggregate about 24 entries.

The sheep shown were about the best we have seen here; Leicesters, Border Leicesters, Lincolns, and Shropshire Downs were in goodly numbers and finely-bred. Mr. Bland invaded the northern metropolis with some of his finest specimens, and took some of the first prizes; but in Mr. Lealie, of Glasslough, he found a rival worthy of his mettle, and the latter did not let the former take *all* the first prizes. The pigs were excellent, but not numerous.

There is but time and space to give a general epitome of the live stock exhibited in the farmers' classes; there were of Shorthorn cows and heifers twenty of all ages, and so remarkably good as to call forth unbounded applause for their beauty, condition, cleanliness, and their evident productiveness as dairy stock. In Ayrshires they exhibited about 15, remarkable for their evident productiveness; but the finest feature of all was the splendid array which farmers made of cross-bred cattle, the beauty of their colours, their grand size, substantial proportions, and capacious udders riveting

the attention of the visitors to such a degree that we could scarcely get a peep at them. They numbered about thirty, and do infinite credit to the spirit and the knowledge displayed by the north men in the selection and crosses which were produced. In sheep they were equally successful, whether in Leicesters, Border Leicesters, or Shropshire Downs; but, like the amateur class, the pigs they exhibited, though remarkably good and well bred, were few, eight pens covering the whole of the farmers' entries. The show of poultry was a very fine one; and in butter there were about 23 samples in firkins, crocks, and samples of six prints of  $\frac{1}{2}$  lb. each. Of scutched flax three samples, and of green flax six samples, the finest was that of James Taylor and Sons, who got the first premium, being much over three feet long, Mr. Borthwick's, who got the second, being nearly as large, and of very superior quality. The show of implements and machines was a good one, but we missed some of the English and Scotch makers, who used to come and pick up some loose cash, but not without giving value for it; however, their places were well filled by their agents.—*Abridged from Irish Farmer's Gazette.*

## THE RUST-IN-WHEAT COMMISSION.

*To His Excellency Lieutenant-Colonel Hamley, Officer Administering the Government of South Australia, &c., &c., &c.*

His Excellency Sir Dominick Daly, Knight, late Governor-in-Chief of South Australia, having appointed us whose names are hereto appended a Commission to inquire into the diseases affecting the cereal crops of this province, we have the honour to report to your Excellency as follows:

I.—**PRELIMINARY.**—The natural history of the rust-disease having for years past formed a subject of scientific investigation, your commissioners did not anticipate being able, with the limited means and appliances at their command, to throw new light on the physiology of that malady; but they have directed their best attention to the question whether the disease which has recently destroyed our cereal crops was identical with the "rust" described by scientific men, or whether it was some new and modified disease, generated by peculiar conditions of soil and climate, affecting the growth of corn in this colony. They have, however, notwithstanding former researches, inquired anew whether the cause of rust was to be sought for in the seed sown, in the soil itself, or in atmospheric conditions affecting the growth of the plant; and, finally, whether any plan could be devised for mitigating the severity of the disease. On these points much valuable evidence, written and oral, has been collected, and will be found appended to this report. Your commissioners have also directed their attention to the disease popularly designated "take-all," and have recorded the observations of many experienced and competent witnesses. The method of investigation has been the following: A schedule of questions (see Appendix), comprehending some twenty separate branches of inquiry was printed, and parcels forwarded to all the corporations and district councils of the province for distribution amongst agriculturists and other suitable persons in their respective neighbourhoods. It was considered better that the various district councils should themselves select the farmers whose evidence was required, than that the commissioners should limit their inquiries to individuals of their own choice. As regards the schedule of questions itself, it was framed simply as a guide to those who might wish to avail themselves of it; each person addressed being invited to state his own views and opinions in his own way, altogether regardless of the questions proposed by the commissioners. Many witnesses have, in accordance with this invitation, given the result of their experience on various points of importance, supplementary to their replies to the schedules. The communications received in answer to the queries propounded by the commission have been carefully considered and collated, the most important portions of the information elicited being hereto appended. This has un-

avoidably occasioned some delay, but the value of the evidence thus secured will more than compensate for the loss of time. In addition to the useful and varied information gathered through the post from about 700 practical agriculturists, various witnesses have personally attended before the commission, and given *visu voce* evidence, which will also be found in the appendix. These witnesses include some of the most experienced and observant wheat-growers in the province, as also our ablest agricultural chemists and microscopists. Your commissioners have also had the benefit of a thoughtful and elaborate paper, prepared by Mr. Charles Todd, on the rainfall of last season, compared with that of seasons preceding—a paper to which they point with more than ordinary satisfaction, as replete with information valuable to the scientific farmer and the naturalist. Reference should also be made to a report kindly and readily furnished by Dr. Mueller, of the Melbourne Botanic Gardens, on the subject of the rust in wheat, summarizing the latest researches and discoveries with regard to that fearful malady, and effectually setting at rest some plausible but unsupported theories on the subject. The scientific aspects of the question have also been professionally elucidated by Drs. Muecke and Schomburgk, and Messrs. Francis, Cossins, and Ey, of this colony, whose conclusions are also appended. With these preliminary remarks, your commissioners proceed to submit the result of their investigations.

II.—**RED RUST.**—As regards the physiological character of red rust, there can be no doubt whatever that it is essentially a vegetable parasite or fungus, attacking the plant externally, and brought into active operation by certain atmospheric or climatic conditions, the most effective of which last year were heat and humidity. In September and October there was a most unusual amount of moisture combined with sultry heat, and frequent heavy dews at night—that blades of cereal plants being kept in a continual state of dampness, with occasional rapid evaporation, causing the pores of the leaf to be more than ordinarily open, and thus facilitating the entrance of the infinitely minute spores, or seeds of the rust fungus, which are more or less always floating in the atmosphere, or deposited on the soil or surrounding objects, ready for dissemination by every wind that blows. An opinion has been expressed before this commission that the rust on the wheat blade is simply an exudation from the plant itself, a spontaneous overflow of sap, and is not the result of parasitical attack. But this theory is altogether without support, either in the general conditions and circumstances of the rust as observed by the naked eye on a great variety of plants, or



in the microscopic appearances of the diseased wheat plant. For although the most luxuriant growths of wheat have doubtless suffered most from the rust, thus lending an apparent support to the theory of sap "exudation," it is an undeniable fact, that a large number of cereal plants and grasses—the very reverse of luxuriant—have also suffered from rust, which must, therefore, be accounted for in some other way than by the outflow of superabundant juices. The spores of the rust are proved to be true seeds, possessing a uniform and definite character according to their variety, retaining their vitality as other seeds do, and capable of being developed at any time by the application of heat and moisture. Your commissioners have examined through the microscope various specimens of last year's rusted wheat, and find the rust spores identical in appearance with those noticed and delineated by Mr. Cooke, and other eminent mycologists, who have written on the subject. There is, therefore, no doubt whatever, that the rust in wheat, now so painfully known to South Australian farmers, is identical with the disease long recognised by the same name in Europe, briefly described by Dr. Mueller, in his report hereto annexed. It has also been shown in evidence, that the red rust has affected, in addition to wheat and other cereals, flax, lucerne, wild oats, wild barley grass, reeds, and many other vegetable productions. It has been noticed that the red rust appeared in some localities before the humid weather of September and October, and also (in the south-east), after the dry, hot weather had set in. On this point it may be remarked that there are two distinct varieties of red rust, designated in Dr. Mueller's paper, *Puccinia graminis* and *Puccinia straminea*—one of which has the power of producing its spores in almost any season. Mr. Ey, in his evidence, also refers to the two kinds of rust, and avows his conviction that both have been active agents in the destruction of last season's crop. The rust that appeared earlier is popularly known as the "long corn" rust, and is believed to have borne a full share with the *Pera rubigo* (or true rust) in the desolation of our last harvest. In the course of this investigation some points of importance have been established, materially affecting and modifying opinions hitherto entertained. In 1866, it was reported by the Agricultural and Horticultural Society, who took evidence on the subject of red rust, that crops grown upon land long cultivated were much more liable to the disease than those grown upon new land, and that crops grown upon well cultivated and manured land were much less liable. These opinions, though disavowed by some cultivators, prevailed very generally down to the time when your Commissioners entered upon their investigation; but the experience of last season excited grave doubts on the subject; and the result of the evidence now adduced entirely sets aside this portion of the report of the Agricultural Society. It is found, as the almost uniform result of last year's operations, that rust has prevailed upon all kinds of land—upon lands long cropped, upon fallow lands, upon grazed lands, upon virgin soil, upon manured lands, upon the plains, and upon the hills. But more than this, it has been proved that in nearly every instance the richest lands have suffered the most from red rust, and that, in a large number of cases, the best crops have been reaped from the poorest natural soils, and from those most exhausted by frequent cropping. It is an almost universal fact that wherever the wheat grew most luxuriantly in September and October, there the failure has been most complete; whilst those crops that in the early part of the season were the least promising, as a rule, turned out by far the best sample and the heaviest yield. This very remarkable circumstance, attested by hundreds of witnesses, is thus accounted for: Luxuriance in vegetation, like excessive fat in animals, is not identical with vigour. Plants forced into abnormal luxuriance are more susceptible of climatic changes than those which are tough and hardy. The more juicy and succulent the plant, the more predisposed is it to the irruptions of the rust. The pores of the leaf being unusually open, the minute spores of parasitical fungi can more readily enter. Then, again, the more dense and heavy the crop, the less possible is it for the wind to circulate, and the saturated leaves to dry. On the other hand, in a thin, light crop, the leaf pores being less open to the entrance of the rust seed, the disease is not so freely propagated, whilst the whole crop is far better situated to enjoy the drying influence of the wind, which retard the development of the parasite. The poor crop has thus a twofold advantage over

the thick and luxuriant crop in a season favourable for the development of rust. Hence, so far as red rust is concerned, rich soils, and what is termed "high farming," instead of shutting out the disease or mitigating its severity, operate in the contrary direction, always supposing that the climatic conditions favourable to the development of rust are present.

The *modus operandi* of the disease is twofold. The rust spores, obtaining entrance through the open stomata, or breathing pores of the plant, are very quickly developed, and, pushing forward rootlets (*mycelia*), gradually work their way along the sap vessels of the leaf—in all probability injuring, by their multiplication and progress, its internal mechanical structure. But the chief damage—or, at all events, that which can with most certainty be traced—is caused by the absorption of the wheat sap by the parasite that has entered its channels. The juices that should have gone to nourish the wheat-ear are intercepted in their progress by the rust fungus, which starves the grain by living on its proper nourishment. This is not only deduced from microscopic observations, but is clearly demonstrated by chemical analysis. Healthy grains of wheat contain certain definite proportions of inorganic ash—the ash, in its turn, containing definite proportions of phosphoric acid, potash and soda, and magnesia. It has been demonstrated that rusted wheat is very deficient in that ash, having sometimes less than one-third its proper quantity. On the other hand, the rust spores, gathered from the rusty wheat, yield, on analysis, an extraordinary quantity of ash; and this ash is found to contain a large amount of the constituents present in the ash of healthy wheat, but wanting in the ash of rusty wheat. Doubtless further experiments on this point are eminently desirable; but, as far as chemical analysis has extended, it seems fairly proved that the wheat perishes through the absorption of its proper nutriment by the rust fungus, and that the constituent elements wanting in the shrivelled grain are to be found in the parasite which has fed upon and destroyed it.

III.—SEED WHEAT.—Your Commissioners having come to the conclusion that the red rust is not originated in the soil, next directed attention to the several varieties of seed-wheat, with a view to determine whether any descriptions were of more hardy character than others, and better calculated to repel the attacks of the disease. On this subject the evidence of the numerous witnesses is remarkably coincident. With but very few exceptions it has been found in all parts of the colony that the Tuscan and purple straw varieties suffered least, whilst the more prolific varieties, such as the Goldsmith, suffered most. The Tuscan however, being a poor, yielding grain, is not likely to be generally selected for seed; and the purple straw, therefore, is the wheat now generally recommended as combining a fair yield and a certain degree of resistance to the red rust. It of course remains for the farmer to determine whether (to ensure the weightiest crop) he will sow prolific but tender varieties; or whether he will purchase a certain degree of immunity against the rust by being content with a variety of seed not quite so famed for heavy bearing. It is noticeable that the Victorian Commission of 1866 emphatically recommended care in the selection of seed wheat, reporting favourably of the red straw and Tuscan, and deprecating the golden drop, white prolific, white velvet, and Winslow. Attention has been specially directed during this investigation to the question of the fitness or unfitness of shrivelled grain, and grain from rusted crops, for seed. There being in many districts of the colony but little good seed this year, your Commissioners deemed the point now under consideration to be one of the utmost importance, and they have much satisfaction in stating that numerous witnesses declare, as the result of their own personal experience, that shrivelled and rusty seed will produce healthy and abundant crops. This fact has, indeed, been known both to scientific observers and practical farmers for many years, and is specially remarked upon by the Victoria Committee. In that colony scientific research and practical testimony were both brought to bear on the subject; and, although Dr. Mueller and his colleagues appear somewhat hesitant to account for the fact, yet they are most confident in reporting that not only will shrivelled and rusty seed produce good plants, but in many instances have yielded healthier and heavier crops than those raised from first-class seed. Nevertheless, as strong objections had been urged against the use of last season's rusted wheat as seed, the Commission felt it desirable to bestow special care upon this

branch of their inquiry. They therefore collected all the reliable information in their power, and also requested Dr. Schomburgk, of the Botanic Gardens, to experiment upon various samples, including some of the worst procurable. The result of experiments thus made fully supports the evidence of agricultural witnesses. The very thinnest grain germinated as readily as the finest; and, although on first springing up it appeared slightly weaker than the other, it grew freely, and in a few days was as vigorous as that proceeding from a plumper seed. As however the germ must be nourished from the substance of the seed until its roots can draw nutriment from the soil, it is reasonable to suppose that very poor seed would have a better chance in good than in exhausted soils. Your Commissioners therefore consider that their inquiries on this particular question terminated alike in an undeniable and satisfactory conclusion. Much valuable information on that subject, including Dr. Schomburgk's report, is appended. It having been thought by some persons that the rust may partly be accounted for by the continued use for many years of the progeny of the same crop, and that a change of seed, brought from distant localities, would shut out the disease, your Commissioners report that this idea is not supported by the evidence. On the contrary, crops raised from seed brought from distant places have been affected with rust equally with those raised from seed grown on the same sections. No doubt, for other reasons unconnected with rust, change of seed is often desirable; and the evidence of witnesses on this point shows that new seed should be procured as nearly as possible from a latitude similar to that where it is intended to plant it, and also from a poorer soil to a richer one, and *vice versa*, otherwise time will be lost in the acclimatization of the new arrival. Fine specimens of South Australian seed-wheat have produced soft and diseased crops in England, in fields where seed grown in the same neighbourhood produced healthy and fruitful plants. The colonial seed had not become acclimatized, and the plant suffered accordingly. But although the red rust is shown to be dependent upon atmospheric conditions, and to commence its ravages upon the stem and leaf of the plant, and not to ascend from the root, it is nevertheless desirable to pickle the seed for the purpose not only of killing the spores of black rust or smut, but also in order to destroy spores of the red rust which may happen to attach to it. On the subject of the composition of pickles for wheat, a few words will presently be added.

**IV.—BLACK RUST AND SMUT.**—Smut being effectually destroyed by a proper preparation of the seed, it has not been thought necessary to inquire particularly into a disease within the knowledge of all practical farmers. With reference to black rust, late sowing is recommended as a preventive, unless the ground should previously be thoroughly saturated. Dry ploughing, by turning up the land in clods, and leaving open cavities beneath the surface, which harrowing does not fill up, is considered by several practical agriculturists as strongly favouring the development of black rust. One witness says, "The remedy I always adopt is, never to work my land unless it is sufficiently saturated with a certain depth of rainfall, so that the soil is sufficiently moist throughout, and then working the land when it is mellow. I have always found I have avoided black rust. I was led to conclude that black rust came from the roughly-broken state of the soil; as the harrows only penetrate an inch or two—the black rust always made its appearance when the roots got down that far—the bottom being hollow as a honeycomb." Others, in like manner, recommend the thorough working and pulverization of the land, combined with proper pickling, as a sufficient antidote to this form of cereal disease.

**V.—TAKEALL.**—This disease, so destructive in many districts of South Australia, is not so well understood as rust. Farmers and chemists are alike at sea—ploughmen and microscopical observers differ in *lofo* as to its nature and causes. It is said to result from an exhausted soil, from the presence of too much salt in the soil, from the deficiency of some constituent element essential to the maturing of cereal crops. It is declared to be want of drainage, and it is said to be want of measure. It is affirmed to be caused by a vegetable fungus, and to be a disease analogous to the potato disease. It is also said to be the result of insect ravages. Scarcely any two witnesses agree on this point, whether farmer or chemist. But the subject is of far too great moment to be passed over indifferently. In some respects, takeall is more to be dreaded

than red rust. The latter cannot commit wholesale destruction, unless in connection with a description of weather such as we rarely have in this colony; but takeall appears altogether independently of the weather. And as its ravages are irrespective of climatic influences, so are its movements inexplicable by reference to locality or soil. It is, like last season's rust, to be found everywhere, and the richest soils often suffer the most. It attacks newly-broken or fallowed land as well as land frequently cropped. It especially attacks the slopes of hills—not so often the table land on the top, nor the flats in the valley, as the slopes and sides. All cereals fall before it; even native grasses disappear. It works in patches, selecting certain spots or centres—thence radiating, often succeeded by cockscur or Grant's thistle, the takeall in following seasons reappearing in other spots. Its movements being so little reducible to rule, experience and observation are at fault in endeavouring to explain it, and hence conflicting ideas. This difference perplexes the inquiry, whilst the rapid spread of the pest, and the fear that it will every year encroach upon wider tracts of country, render close observation and study a duty of the utmost importance. The appearance of the cereal, above ground, as it fades away and perishes under the influence of this insidious invader, needs no description, being but too well known. The root has been examined, and appearances detected, leading some observers to conclude that the disease is caused by a vegetable, and others by an animal parasite. Dr. Muecke has magnified and photographed fibres of the roots of wheat plants suffering from takeall, exhibiting a number of minute white threads of a woolly appearance, which he considers to be the *mycelia* of a fungus causing the disease. Mr. Ey, who has also examined it microscopically, says that it is not a fungus, and that the supposed fungoid may be found attached to all roots, healthy or unhealthy. He considers that the disease is caused either by animalcula attacking the plant in the first instance, or by the growth of a sort of a lichen at the bottom of the stalk, which serves as a nest for animalcula. He says: "What I recognise under the name 'takeall,' is the *Fibrio tritici*, or eel of wheat. A plant taken from a diseased spot will be found black on the stem, from the roots to the first internode; and on pressing, a thin film of lichen or moss will come off. In this will be found a number of animalcula coiled up, apparently dead; but on being moistened with a drop of water, on a glass slide under the microscope, will come to life in an hour, moving about with great rapidity. They are like eels of wheat, which, as yet, have only been found in the grain. I have not yet satisfied myself whether the eel or the lichen is the primary cause; but one of the two is takeall. The animalcules might be sown with the seed; it is sometimes the case that one grain of wheat will contain 4,000 to 5,000 eels of wheat."

The witnesses, however, whilst giving expression to their opinions, or their conjectures, were all (with the exception of Dr. Muecke, who strongly adheres to the fungoid organ of takeall) very careful to avoid any final or positive avowal. It is scarcely probable that the takeall results from the development of *vibriones* sown in the seed wheat, because the disease has been just as bad in crops from seed pickled in strong dilutions of sulphuric acid and other mixtures fatal to insect life, as in crops not pickled at all. The Victorian Committee make no reference to takeall—the very name in fact being an admission that the nature and cause of the malady are not as yet found out. The use of sulphur has been found beneficial, and land rendered barren by takeall has been recovered where the ashes of a bush fence had been scattered; but it is doubtful whether the sulphur acted specifically upon the supposed spore or egg of the takeall, or chemically upon the soil, nor is it certain whether the ashes of the bush fence destroyed the takeall by acting chemically upon the soil, or whether the change noticed where the edge was consumed might be attributable to the heat of the fire. It is exceedingly desirable that this most vital question should be thoroughly sifted, as there is imminent danger of our wheat lands succumbing section by section to this mysterious visitor, and the Commission are, therefore, of opinion that a series of experiments in the application of diluted sulphuric acid, and also of sulphur in its various combinations, both as a pickle for the seed and as a top dressing for the diseased spots in the land, might be of great use, inasmuch as the only generally available remedies for takeall described in the evidence as having been successfully used are

diluted sulphuric acid, applied by Mr. Ey as a top dressing, and sulphur and lime, used by Mr. Martin as a pickle for the seed.

**VI.—PICKLING SEED WHEAT.**—Although experience shows that pickling seed wheat is no security against red rust, it does not follow that it has no effect at all upon that disease. Apart, however, from this formidable enemy to cereals there are other foes to be met and vanquished only by a proper system of pickling the seed, and hence the inquiries made and evidence taken by the Commission on the subject. It is not necessary to dwell upon a practice so well known and generally observed; but it may be remarked that the evidence taken discloses great difference of usage in this particular. Whilst some farmers only let their wheat remain in pickle for a few minutes; others allow it to be in solution for hours. The chemical witnesses recommend six or eight hours' steeping; Dr. Muecke says eight if the weather be wet, and twelve if it be dry, giving four ounces of bluestone to the bushel. Some farmers do not soak the wheat at all; but merely sprinkle it with the liquid solution, turn the heap over a few times, and dust it with dry lime. It is doubtful, however, whether the fungus spores adhering to the grain are effectually destroyed in this manner, and as the power of wheat to retain its vitality under certain conditions of pickling can easily be ascertained by experiments, it would be worth while for agriculturists to make a set of trials. There is much reason to fear that in many instances, from the weakness of the solution and the insufficient time allowed for the grain to absorb it, the operation is null and void, so far as regards the destruction of the parasitical spores. It has been shown that sulphur, either in form of flowers, or milk of sulphur, or in that of sulphuric acid, has been employed with very excellent effect. The sulphuric acid is used, four ounces, by weight, to each bushel of seed, diluted with as much water as the wheat will take up; the latter, after a few hours' solution, being dried with slaked lime. Sulphur and lime also make an excellent combination most effectual in destroying fungi. The milk, or flowers of sulphur, in powder, to be mixed with twice its weight of fresh slacked hot lime, ten gallons of water to each pound of sulphur: this forms a sulphuret of lime with which the wheat is to be well moistened, and afterwards dried with fresh slacked lime. It is to be hoped that a few practical experiments will be made during next seed-time, with a view to determine the double question of the proper strength of pickle and the length of time that the seed should lie in it.

**VII.—STUBBLE BURNING.**—On the subject of stubble burning, in connection with the rust disease, the evidence is conflicting. From the prevalence of the rust last season it follows, however, as a matter of course, that the country is covered with rust spores to a far greater extent than usual, and that a large proportion of them adhere to the straw and stubble that lie on the stubble lands. These spores would necessarily be destroyed by the burning of the stubble, although enough would still remain in other places to spread the disease next year, should we have a return of last season's weather—a contingency, however, which, to judge from the past, is highly improbable. Still, as we have had rust in several previous years, although to nothing like so fearful an extent, the Commission recommend the burning of stubble, and the collection and burning of hedge clippings and other refuse matter, in which the seeds of the rust fungus will have found shelter.

**VIII.—EXHAUSTION OF THE SOIL.**—Although not immediately connected with red rust, your commissioners have taken evidence with reference to the constituent elements of the soil in this province, and have to report that this important branch of agricultural science has been almost wholly neglected. Not more than half-a-dozen analyses of the soil appear to have been as yet made, so that science has so far lent practically no aid at all in instructing South Australian farmers as to the adaptation of their lands to the growth of particular crops. It is, in the opinion of this commission, highly desirable that an agricultural chemist and analyst be appointed, in order to carry on a regular and continuous system of experiments upon soils and manures, and also to conduct microscopical and chemical observations bearing on the subject of the growth and disease of our cereals. The vast tract of country annually cropped with wheat is being gradually robbed of its phosphates, and other constituents essential to the formation of a healthy growth; and as there is

scarcely anything returned in the shape of manure, the grain-producing power of the soil is every year becoming less, involving a sure diminution of average yield, even though we may escape the plague of red rust. The appointment of an official agricultural chemist would not involve any serious expenditure, whilst it would afford to farmers generally the means of obtaining reliable analyses of their wheat-lands at a nominal charge, thus guiding them in the choice of crops, and in the adoption of measures calculated to restore to the soil those fertilizing elements of which it may stand in need. It cannot be too constantly borne in mind that soils are not always to be correctly judged from appearance, even by the most practised eye. Land that appears rich, and which, as regards most of its constituents, may really be so, may, notwithstanding, be deficient in some one element indispensable to the growth of a vigorous crop, or of some one element necessary to render the other constituents of the soil soluble and capable of assimilation by the plants. This knowledge can only be acquired by chemical experiment. In other countries, and in the sister-colony, especial attention is devoted to this branch of agricultural science which, though pre-eminently necessary in South Australia, is neglected with an indifference as reprehensible as it is unaccountable.

**IX.—CONCLUSION.**—On the whole, and especially as regards the red rust, your commissioners, though, necessarily unable to discover a specific remedy for a disease, the germs of which are universally diffused and brought into active vitality by atmospheric causes, have much pleasure in submitting to your Excellency the large amount of valuable information elicited by this inquiry. If a positive cure is not discovered, several very serious mistakes are corrected; mistakes which would be costly in their operation and disappointing in their results. It is shown that the extraordinary ravages of red rust last season were not caused, as many asserted, by exhaustion of the soil; and that, therefore, expensive manurings—however beneficial in other respects—are useless as a preventive of rust. It is shown that there are some wheats harder than others; the farmer thus having, in some small degree, the means within his own power of diminishing the extreme destructiveness of the disease by avoiding those varieties that are most easily overcome by it. It is also shown that as red rust is not propagated, like smut, from diseased seed, shrivelled grain, of little value for milling purposes, will produce both healthy and abundant crops, under ordinary favourable circumstances of soil and climate. It is shown that agricultural chemistry has scarcely made a start as yet in this colony, although of so much importance to a proper system of cultivation. And finally, your commissioners hope that the attention which has been so widely directed in all parts of the provinces, not only to the sad visitation which has befallen it, but to the general condition and prospects of agriculture, will have the effect of leading to closer habits of observation, and to more careful experiments on the part of farmers themselves; and on the part of the Legislature and Government, to a corresponding appreciation of the claims and requirements of an interest which, without exaggeration, may be represented as the cardinal industry of the province, and the chief foundation of its prosperity.

Committee-room, Parliament House, April 9th, 1868.

JOHN H. BARROW, Chairman.  
THOS. HOGARTH.  
WM. EVERARD.  
JNO. CAER.  
W. CAVENAGH.

[The Appendix referred to in this Report has not yet been published.]

**CURE FOR RED-WATER.**—Boil 6 lbs. of nettles in a gallon of water until it is reduced to half a gallon. To three pints of this juice add one pint of salt, and give it to the animal when she is attacked. If given in the early stage, one dose is sufficient; if the attack has been in the animal for some time, a second dose will effect a cure. [The person who gave us the recipe milked 60 cows, and he never had a fatal case since he was told this remedy.—ED.]

## THE CONDITION OF THE AGRICULTURAL LABOURER.

Mr. BAILEY DENTON read a paper on this subject at the meeting of the Society of Arts, in which he said: At the next general election that class of the community known as the agricultural labourer will be the only operative class which will be excluded from voting. Though, in the practical view I take of the matter, I fail to discover any reason why operatives living in boroughs should be admitted to the franchise, while operatives living in the country should be excluded, I cannot help recognising in the uneducated, dependent, and scattered condition of the latter the real reason why the country has tacitly allowed—as if by common consent—a distinction to be made between the wage-paid labourer of the factory and the wage-paid labourer of the farm. This distinction cannot have arisen because the premises occupied by the one are more valuable than those occupied by the other, for it would be difficult to say which labourer's dwelling—the rural or the urban—costs more money to provide, and it has often been shown in this room that the actual money-rent paid by the farm-labourer is no criterion of the value of the premises he occupies; nor can it be because the wages of the one are much greater than those of the other, for when the earnings of each are carefully dissected it will be seen that there does not exist that great difference between the two which there is generally supposed to be. It can, in fact, only arise from those causes which limit his mental abilities, and prevent his increasing the value of his labour, while they depress his status in the social scale—causes which it is the duty of the country to investigate and remedy. But before I go into these causes and remedies, I will do my best to remove the misapprehensions that prevail as to the value of the farm-labourer's occupation and the amount of wages his services command. There is much in the one that affects the other, and no effort to improve either can be successful unless we carefully comprehend the circumstances of both. The average rent of farm-labourers' cottages at the present moment may be fairly stated to be rather under than over 1s. 6d. per week, which is less than £4 a-year. This rent is quite as much as the majority of old existing cottages are worth, for most of them have but one bed-room, and are wanting in those accommodations which are essential to decency and comfort. Such dwellings have been, and may still be, built for about £50 each, if constructed of plaster and thatch, without regard to substantiality, and £4 a-year—being 8 per cent.—may be considered a full return, if such dwellings are admissible at all. But if we have reference to those cottages which, under the influence of sanitary reform and sound estate economy, are taking the place of those miserable hovels—which all well-thinking people condemn—we shall find that their average cost is £180 each, or £320 the pair, exclusive of the site on which they stand. This site, which would cost £15 more, would make the fee simple value of the whole £175. We all know that every speculator, employing capital in house building, looks for something like 7 per cent. if he is to replace the capital and make 5 per cent. net after paying insurance and doing repairs. If, therefore, a farm labourer paid for his occupation the rent in money which a speculator would demand, the payment, instead of 1s. 6d. or 2s., which he still continues to pay for a good cottage as he did for a bad one, would be £12 5s., which closely approximates the rateable value fixed as the qualification of a county voter, while it exceeds that of the lodger in boroughs. But it is not in money wholly that the farm labourer pays for the improved cottage, if it forms part of the farm on which he works, or is so connected with it that the farmer has command of the services of the cottager. A farmer having good cottages at his disposal can select the best workmen as his daily labourers. Moreover, he can keep them, which is not the case with the occupiers of the miserable hovels that generally exist; and as newly-built cottages are now usually placed so as to reduce to a minimum the distance the labourer has to walk, whereby time and sinew are saved, the advantages to the employer are, in the aggregate, equal to the difference between the return due to the condemned hovel and that due to the improved cottage; and thus, in point of fact, the farm labourer receives

in a better home an equivalent to increased wages. Having had some considerable experience in nearly every county in England, I desire to state shortly the conviction at which I have arrived—that, measured by the real value of the services rendered by the agricultural labourers in different parts of England, the prices peculiar to different districts are as high as the return to be gained from those services will sanction. It appears to me to be a fallacy to suppose that the labourers of one district are as good workmen as the labourers of another, and that for the services of each, when applied to the same object, the same money should be paid. Still, it can only be on such grounds that the proposal lately enunciated for the formation of unions, even though "established on principles strictly defensive," among agricultural workmen, can be supported. Considering that combinations of workmen are injurious in proportion as ignorance prevails, and that the want of education is the special characteristic of the agricultural labourer, I can anticipate only the worst results from unions among them, and am quite at a loss to comprehend how any national benefit can arise by encouraging them. If the labourer of Dorsetshire or Devonshire was as able a workman as the labourer of Northumberland or Lincolnshire, a common standard of daily wages could be adopted; but the truth is that there is as much difference in the value of ordinary labour in different districts in England as there is in the character of labour in different countries abroad, and it is only consistent with economy that this difference should govern the price paid. In making this remark, however, I do not lose sight of the fact that the price of labour must be regulated in some degree by the cost of maintaining labourers and their families in their own districts, so as to perpetuate the race upon which the produce of the land depends. With respect to the wages of the farm-labourer it has been my duty for the last seventeen years to inquire into the standing wages of every locality in which drainage works have been executed. In addition to these inquiries, I have recently made others, and have obtained such reliable information, that I believe I am perfectly justified in stating that the present average weekly wages of the farm-labourer, excluding extra allowances at hay-time and harvest, and all payments for piece-work and over-time, as well as the value of various perquisites in the shape of beer, milk, fuel, &c., are as follows:—

	s.	d.
North-Eastern district ... ..	14	6
North-Western district ... ..	14	0
Mid-Eastern district ... ..	13	0
Mid-Western district ... ..	11	0
Midland district (exclusive of Middlesex) ...	10	9
South-Eastern district ... ..	12	0
Mid-Southern and South-Western districts ...	10	6

These figures include shepherds and horse-keepers, but do not include the wages of bailiffs, where they exist, nor of other special employes, nor the earnings of labourers' wives and children. They include, however, beer and cider when they form a regular daily allowance in lieu of money, but not otherwise. The mean weekly day-labour wages of able-bodied men throughout the whole of England may be taken at 12s. 6d. To this must be added the additional gains by occasional piece-work,\* extra payments at hay-time and harvest, when double the ordinary wages is frequently given, inde-

\* The advantages gained by the adoption of piece-work in the place of day-labour are stated by one of our leading farmers, Mr. Charles Howard, of Biddenham, to be—1. The work is done more expeditiously, at the proper time and with less supervision on the part of the employer; 2. It is less expensive than day-work, and payment is made for only the work done; 3. The labourer, finding his wage is regulated by the quantity and quality of the work performed, is more industrious, and exercises more skill in what he does; and 4. By placing higher wages within reach, the temptation to leave farm-work or other occupations is lessened.

pendently of the increased allowance of beer or cider. In the aggregate, the actual income derived from these employments is equal to from 1s. 6d. to 3s. a week, according to the custom of different districts. Where piece-work can wholly take the place of day-labour, a labourer may earn 25 per cent. more than by the day. The total value of the beer and cider supplied to each labourer as his allowance, at hay-time and harvest, when employed in drilling and machine-threshing, and when engaged in piece-work, if spread over the whole year, would amount to from 1s. to 2s. a week, according to locality. With these additions to his direct money-wages, the farm-labourer gains from 15s. to 16s. per week, taking the mean of England. But, besides this aggregate, he gets other advantages, which are unknown to the industrial-labourer living in a town. The rents of the dwellings of town-operatives vary from 4s. to 6s. a week, some having very good dwellings for these rents, while others are obliged to pay as much for lodgings only. Comparing these figures with the 1s. 6d. or 2s. paid by the agricultural-labourer for cottages equally as good or better than the dwellings of the town-operative, the difference must be regarded as a gain to the former. The town-operative seldom, if ever, has the advantage of a garden wherein he may grow potatoes and vegetables. His outlay for these essential articles of food is often great, particularly if he has many children to provide for. In fact, the ordinary payment for potatoes and vegetables by a mechanic, with a wife and three children, living in town, is stated to be 2s. 6d. a week. An agricultural-labourer, if he is fortunate enough to have—what he ought invariably to have—a rood of garden-ground as part of his occupation, which he may cultivate after he has done his wage-paid work, will grow upon it vegetables sufficient to yield him a return, after payment of rent and for seed, of at least £4 a year, which is rather more than 1s. 6d. per week. I am assuming in this estimate that he has time and strength sufficient to do all the labour that is required to cultivate it, and that he is careful in storing the refuse of his dwelling, i.e., the ashes, sewage, and waste, so that he may avoid any payment for either labour or manure. Thus it will be seen that from his house and garden the agricultural labourer gains advantages equal to at least 4s. a week, which, if added to his money returns, will raise his wages from 15s. or 16s. to 19s. or 20s. a-week, independent of what his wife and children may make, and this frequently adds 25 per cent. to his income. I have said nothing about the gains of gleanings, which have been estimated at £1 1s. 10d. to £2; nor about the favourable difference in the cost of bread, meat, and milk in the country compared with what it is in towns; nor of the benefit an agricultural labourer is said to derive from the keeping of a pig, as I am doubtful myself whether anything is fairly gained by it; neither have I estimated the great advantage of pure country air in securing the health and strength of the labourer and his family, though all these have a money value which should be considered. I may here state that for several years past I have adopted the weekly wage of 90s. as the basis of payment to the able-bodied labourers employed by the General Land Drainage Company when away from their homes during the draining season, at which time the number has frequently exceeded 1,500. The system adopted when going into fresh districts is to make the earnings of a few good practised hands, of medium capability, who follow the company's foremen wherever they go, the data for paying all other hands. The weekly work of a good gang of drainers will, if divided, give to each hand as much as from 30 to 40 rods of digging, and the price per rod will be fixed by the foreman at such an amount as to apportion to the standard men 10s. to 22s. a-week, according to the length of the day, after paying for the repair of tools. While these figures are the wages of standard workmen, the local labourers, at the commencement of the work, will seldom earn more than from 10s. to 12s. Of course this is to be expected, and the statement is only apposite to the present inquiry, when it is said that, whenever a turn-out or a strike takes place it is invariably found to have its origin in the local men, and there are many kindly-disposed persons who take their part, though the result invariably shows, if they will only persevere, they can, after a time, make as good wages as the older standard hands. With this knowledge it will be understood with what dismay I look upon the proposal of unions which can only maintain inferior work, done at an extravagant cost, and discontent at the same time. The weekly earnings of different

labourers, which fairly represent the class known as industrial operatives, may be stated to be as follows:—

Carpenters and joiners .....	from 18s. Od. to 28s. Od.
Sawyers .....	" 21s. Od. to 26s. Od.
Bricklayers .....	average 31s. 6d.
labourers .....	19s. 6d.
Brickmakers .....	from 24s. Od. to 30s. Od.
Masons .....	average 30s. Od.
labourers .....	17s. 6d.
Gardeners (exclusive of head gardeners) ..	16s. Od.
Smiths .....	from 26s. Od. to 28s. Od.
Painters .....	average 28s. Od.
Boot-makers .....	from 21s. Od. to 26s. Od.
Tallow workers (labourers) .....	average 18s. Od.
Coal miners .....	from 17s. Od. to 27s. Od.
Quarry men (slate) .....	" 18s. Od. to 23s. Od.
Carters .....	" 17s. to 19s. Od.
Railway labourers (maintenance) ..	" 15s. Od. to 20s. Od.
Butchers' men .....	" 16s. Od. to 18s. Od.
Police-constables .....	average 20s. Od.
Bakers' men .....	from 21s. Od. to 26s. Od.
Cotton workers .....	average 18s. 6d.
Silk workers .....	from 17s. to 24s.

The difference between these figures, which, it will be seen, do not cover the highest grade of trade operatives, and the wages of the agricultural labourer, is too great to exist between the two main branches of the wage-paid classes without making efforts to reduce it. It accounts for the fact that the population of our leading agricultural counties is decreasing, while that of other counties in which manufacturing towns exist is increasing with more than ordinary rapidity. It accounts, too, for the deplorable truth, that while the industrial labourers of our towns are known to save money to provide for incapacity and old age, the utmost the agricultural labourer manages to do is by means of provident societies, if he is lucky enough to belong to one which is well managed, to provide for illness during his working age. In the breast of the former there exists a hope of accumulating money, and ultimately becoming a master, while the final prospect of the latter is, I regret to say it, nothing but pauperism and the union. Sad as this picture is, it is a satisfaction to know that the rate of agricultural wages throughout the country has increased within these last 35 years quite as much as 20 per cent., while the prices of those provisions and supplies which constitute the ordinary food and necessities of life have, on the whole, decreased in the aggregate about ten per cent. The price of meat and cheese has increased within the last few years at an extraordinary rate. This is partly to be accounted for by the prevalence of diseases amongst cattle; and it is a curious fact that just 50 years ago the price of the best meat was the same as at this moment, though if we only go back half that time—25 years—it was about 40 per cent. cheaper. Inferior meat has not been liable to such changes, though there has been a rise of 2d. per pound. Bread, though high in price at this moment, remains at much the same cost as it was before the repeal of the corn-laws. Beer, though nominally cheaper, is so much worse in quality that we cannot regard it as actually reduced in cost. Tea, coffee, sugar and groceries generally are 50 per cent. less than they were 50 years ago. Clothes and shoes are equally cheaper. The cost of fuel, on the whole, is less than it was 35 years ago. Though I hope I have shown that the position of the agricultural labourer is not so bad as many represent it to be, no one can say that it is quite satisfactory; but with the profits of farming as low and uncertain as they are, it will be acknowledged that the only way to justify an increase of labourers' wages will be by rendering the value of the labour given greater than it now is. Active hands, directed by superior intelligence, already obtain wages above the mean of 16s.; and as there is greater scope in agriculture for the exercise of judgment than perhaps in any other trade or pursuit, in which physical labour forms so great an element, owing to the diversity of its objects and the casualties which may affect them, there is no reason to doubt but that with an increase of knowledge on those points which alone can enhance the value of labour, the earnings of the whole class may be increased. This directly brings us to the subject of education and its influence on the agricultural labourer by bringing his mind to bear on his physical duties. The state of education among agricultural labourers was truly

indicated by the Royal Commissioners appointed in 1861, to inquire into the state of public education in England, when they said that in the British army, which I believe is chiefly made up out of the agricultural class, "out of 10,000 soldiers examined in 1866, more than one-fourth could not write, and more than one-fifth could not read, while in the British Foreign Legion, raised in 1855, four-fifths of the Italians and 97 per cent. of the Germans could both read and write." Those, however, who are brought often into contact with the English farm labourer, as I happen to be, require no statistics to prove the almost total absence of education that exists among them. We can only wonder that with a nation so advanced in civilization as our own, such a condition of mind should be allowed to lower one particular class without a general effort on the part of all other classes to improve it. But the want of education is not to be wholly attributed to national apathy and indifference. It is due to various causes special to rural life, but perhaps the most powerful of all is the belief that existed largely at one time, and still lingers with some few farmers, that education disqualifies a labourer for manual work in the field. This belief had its origin in the little education possessed by the majority of farmers in times past, though at the present time there is no class more quickly awakening from indifference to the benefits of knowledge than the farmers. Moreover, they are not as a class to be blamed wholly for past indifference, for there were many landowners who themselves preferred men as tenants on their estates who were not possessed of those attainments which qualified them to appreciate education in their labourers. Not many years back it was a common thing to exhibit less care for the comfort of the labourer than for the comfort of cattle; better buildings, indeed, were provided for the cows than for the labourers. But this state of things is happily gone by. I will not here dilate on the manner in which the children of the labourer should be taught at school, nor enter upon the arguments for and against compulsory education. I am content to express my conviction that primary education at school—consisting of reading, writing, and arithmetic—is essential as the basis of improved practical knowledge, even though it be called forth in the duties of a labourer, and that, as public attention has at last been aroused to the object, the good sense of the country will rightly determine how it shall be attained. To confine our efforts, however, to elementary school learning would, I contend, fail in the object we all desire—which is, to see the farm labourer earning more money by labour of greater value to his employer. To do this, technical—that is, practical—education must be associated with primary school teaching. Technical education, I believe, has been more than once explained in this room to mean practical tuition in those operations which men are called on to perform in the business of life. It is, however, a term that has been exclusively used in connexion with the arts and sciences, and those businesses in which mechanical and chemical science have been mixed up. In agriculture I believe the term has never been used; but perhaps in no calling is technical education—if by that term we properly express practical education—more required. I will endeavour to make this understood. There is not a farmer in the country who, be he engaged in sheep farming or in dairying, in tillage, or in mixed farming, does not know the superior value of a labourer well acquainted with special duties. Take, for instance, a shepherd. The wage of a good shepherd is 16s. a-week, besides perquisites; and I venture to say that, at this moment, there is hardly any other description of agricultural service in which there are fewer capable men. A good shepherd is one of the most difficult men to obtain, and the loss to individual farmers, and to the country generally, from the want of them is very great. Again: Good horse-keepers are almost as difficult to obtain as good shepherds. From my own experience I can say that the difference between a good horse-keeper and a bad one is not to be measured by the simple difference between scanty and liberal wages. Any one accustomed to horses knows immediately, by the appearance or the touch of their skin, whether the man in charge of them knows his business; and he will confirm my opinion that any difference in wages will be more than counterbalanced by the saving in the corn which horses will consume, and the service obtained from them when well attended to, compared with that when they have been indifferently treated. The same remark will apply to the tending of neat stock. Speaking again from my own experience, I

have found that cattle under the charge of a man who thoroughly understands them will fatten quicker, and in every respect do much better with less food, than under a man who, from attempting indiscriminately all the duties of the farm, is master of none. In the minor matter of poultry, I have known many pounds lost by the want of proper treatment of them; and many a labourer's wife with a small plot of ground, who has brought intelligence to bear, has raised more poultry in a year than has been produced from a farm of several hundred acres. If this be admitted to be the case with live stock, it will be unnecessary for me to point out the advantages of employing men in the use of implements who have taken pains to understand them. The loss sustained by farmers from the careless treatment of costly implements is great. Few labourers know how to adjust them if they get out of order, and one who thoroughly understands the steam-engine so as to take charge of it when ploughing land or thrashing corn is indeed a prodigy in his parish. And why should we dread the purchase and use of steam-engines on our farms, on the ground that we have not a labourer who could take care of them, when tuition in youth would supply the omission? It is true that my friend, Mr. Howard, of Bedford, now and then undertakes to tutor a farm-labourer in the management of the engine, if he is previously assured of his intelligence. This circumstance, while it shows how an individual difficulty may be overcome, must go some way to prove that technical education is to be attained in the lowest grade of agriculturists, as in the more refined artisan class. It would be tedious to pass through all the branches of a farmer's business, to show how technical knowledge in the labourer would apply. There is hardly an operation in tillage that would not be done better, if the operator had early understood it. Take the simple operations of ploughing, drilling, and sowing: is not a good workman worth 1s. or 2s. more per week than a bad one? The same observation applies to hedging, ditching, draining, and thatching, in which there is no comparison between an expert man and an unpractised one. I have myself sent miles for a good thatcher or hedger. How, then, are these practices to be taught in youth? I will do my best to explain. The only reasonable ground for keeping the children of an agricultural labourer from school, is the circumstance that, having hungry stomachs to fill, and active bodies to clothe, they must earn something to pay for the food they eat, and the clothes they wear; and so weighty is this excuse with some men of high position and character, that they are led to doubt the policy of compelling attendance, even for the limited number of hours yearly which it is proposed the children should be at school. Still, so essential is primary knowledge, that we may with certainty assume that this objection, weighty though it be, will give way to general opinion; and what I would suggest would be, that those children who attend school for the limited time determined upon, should, when earning their food and clothes by labour, be placed in a situation to obtain fundamental technical—or, if it be better, to call it practical—knowledge on the farm; not by placing them indiscriminately one day to do one thing and the next another, merely to meet the convenience of the moment, but by putting them for a sufficient time under the shepherd, or the horse-keeper, or the stock-keeper, or the dairyman, or the engineer, or the hedger and ditcher, or the thatcher, that they may learn, as far as such labourers can teach them, the duties of their future calling. The only difference between the present system and that which I would suggest would be, that a youth employed on a farm should be so systematically engaged that he should early learn, by a species of apprenticeship, all that can be practically taught upon it, and that the shepherd, the dairyman, or the engine-man, as the case may be, with whom he should be placed, should receive a bonus for teaching him all he knows. In order to be assured that these teachers deserve their bonus, the youths should, at certain periods, undergo examination, and, where it be practicable, be made to compete with other youths for prizes. All that would be required in the way of national, district, or outside aid, would be the provision of qualified examiners, and the means of paying the teachers their fees and the youths their prizes. Already we have throughout the country, in the autumn, matches in ploughing, ditching, and draining, and the interest that the labouring men take in the competitions may be taken as some proof that, under proper control, competitive trials may be extended to farming youths engaged in various agri-



cultural duties. The payments to the labourers for teaching, and the youths for learning, would each act favourably in maintaining superior services on the farm, and thus the farmer himself would naturally become interested, and would give his support to the system. Youths would gain at one and the same time primary education at school and practical information on the farm, and the two descriptions of knowledge would tell with increasing advantage upon each other, and would finally effect what is really wanted—an improvement in the quality of the labourer's work, so that he may command increased wages for that work from his employer. At present the beer-shop is a great bar to the improved condition of the agricultural labourer. The influence of drink on an uneducated mind cannot be better shown than by the fact that beer or cider will go much farther than its equivalent in money in inducing men to exert themselves, although the money could be taken home by the labourer for the benefit of the wife and children as well as himself, while the beer or cider, if drunk, is dissipated in selfish indulgence. The quality of the beer and cider sold in the lowest-waged districts is the worst. The beer is seldom if ever genuine, and its effects are not to be measured by its immediate action on the system. It tells equally upon the physical energies of the man as upon the moral powers of his mind. The quantity of beer drunk in the hay and harvest time would surprise many of my hearers, though in the ordinary disbursements of a labourer—as ascertained by Mr. Purdy, of the Poor Law Commission—only one instance appears on record in which an expenditure in beer has been entered. I presume that case was the only one in which the wife had partaken of it as a necessary item of food. It is nevertheless true, that during harvest every able-bodied male labourer drinks beer which costs from 8d. to 1s. a-day, taking the average of harvests in the eastern corn-growing counties. I should be sorry to condemn beer as an article of food when properly made with good malt and hops, but that article is seldom to be met with. The liquid sold as beer in rural districts satisfies thirst at the time, and provokes it as soon as drunk, and it takes more vital strength out of the man than it ever supplies. I cannot speak too strongly against the prevailing excessive use of bad beer and cider. It is the bane of the farm labourer. In those counties in the West of England where cider is used instead of beer, the impoverished condition of the agricultural labourer is even worse than where beer prevails. His inferiority in work is mainly to be attributed to the bad character of the cider, and the excessive use made of it. There is some proof of the injurious influence of excessive drinking, in the fact that in all the worst-paid districts—where labour commands the lowest wages, and where those wages are all that the labour is worth—the publican and beer-seller bear a far larger proportion to the number of agricultural labourers than is the case in those districts where the wages are higher and where the labour is more valuable. We often hear mentioned the low rate of wages in the county of Dorset, and comparisons are made with the wages ruling in other counties. When we turn to the statistics giving the occupation of the people in the population returns of the last census, we find that whereas in Lincolnshire, which I select as the best cultivated county in England, the number of agricultural labourers is 52,871, and the number of people living by the sale of beer is 1,317; in Dorsetshire the number of agricultural labourers is 19,434, and the number of persons selling beer and cider is 582, showing a proportion in the former case of one beer-seller to 40 agricultural labourers, and in the latter one beer-seller to 33 labourers. The proportion in Lincolnshire is much too high; but what is to be said of Dorsetshire, where the labourers earning only two-thirds of the wages of Lincolnshire, support a larger proportion of beer and cider sellers? The figures given, moreover, do not fully represent the real state of things as regards the extent to which the beer and cider is drunk in Dorsetshire, as in that county a great deal of cider is given in lieu of money wages, whereas in Lincolnshire no such regular practice prevails either with respect to beer or cider. But I can illustrate this important part of the question by stating a case, within my experience, which can hardly fail to exhibit the fact that low wages and inferior work are associated with a preponderating use of beer or cider. In the year 1862 I had the control of some extensive drainage works in Dorsetshire, and at that time the agricultural money-wages of the district ranged from 7s. to 9s. a-week. Impressed that such pay was

inconsistent with suitable labour, I imported into the work some north-country labourers from Northumberland, practised in draining, to afford an example for such local men as chose to enter the trenches and dig by the piece. I guaranteed to the northern men a minimum of 18s. a-week, although I could command the services of as many Dorsetshire labourers as I desired to employ at half that price. The result showed that I was right in bringing high-priced competent men amongst low-priced inferior ones, for as soon as the Dorsetshire men knew what the north-country men were getting, and saw the character of the work executed by them, they applied all their energies in imitation. At first they drank more beer, thinking that by such means they could do more work. They soon saw their error, and it was both amusing and instructive at the same time to see how struck they were when they found that the northern men had for their dinners, good meat and bread, while they were living on bread, tobacco and miserable beer or cider. It was by very slow degrees that the Dorsetshire men realized the truth that butchers' meat was more strengthening than bad beer. Eventually, by the example afforded them, the "technical education" given them by the Northumberland men, and by the effect of improved food, the despised Dorsetshire men were enabled to earn as much as their teachers, and it was not long before I actually removed them into the north of England, to compete with Yorkshiremen in the work they had learned; and the first place at which they were engaged was Swine, in Holderness, where there did not exist a publichouse or a beershop in the village! If this experience of mine fails to convey what I mean, I can perhaps show that inferior work, low wages, and excess of drink, are attended by a greater amount of pauperism than belongs to districts where better labour, higher wages, and less beer prevail, by quoting from Mr. Purdy the result of figures he has given in his paper published in the *Journal of the Statistical Society*, which shows that whereas, in an example district in Dorset and Wilts, where the weekly wages were 9s. 6d., the rate of relief to the poor was 8s. 2d. per head on the population, in a similar district in Cumberland and Northumberland, where the weekly wages were 14s. 6d., the rate of relief was only 6s. 5d. Thus far I have spoken of those means of improving the condition of the agricultural labourer which will depend on himself and the force of education gained at school and on the farm. There are other means, however, by which the higher and middle classes in rural parishes may render material aid while the seeds of education are taking effect. I have said may render aid, because all Englishmen resist compulsion; but I feel those words are hardly strong enough when applied to some objects. I would rather say, will be induced to render aid by the influence of public opinion. I refer to four principal objects; first, to a more general substitution of good cottages for bad ones—cottages which will secure health and comfort in the ordinary living department, and provide separate bedrooms for the parents and children of different sexes, so as to secure comfort and decency, which have hitherto been incompatible with the dwelling of the farm labourer; second, the provision of a proper means for the drainage of villages and cottages, and the utilisation of the refuse which may be discharged from them. This is a matter upon which little has yet been done. We have drained large towns, and discharged their sewage into the rivers, a practice which the country has determined shall not be continued. At present we have not entered upon a mode of dealing with the sewage of villages and small communities; and whether it will be by the introduction of the dry-earth system (Mr. Moule's), or by any other process of utilisation, yet remains to be determined. The dry-earth system commends itself to the minds of many as the most suitable for villages, because each resident may preserve the refuse of his own cottage for the benefit of his garden without injuriously affecting his neighbour; and this being a very desirable object, the problem has to be solved how, by combined action, all the residents of a village may be brought into one common system of proceeding. As the wage-paid labourer cannot of himself do this, it would appear positively necessary that the owners of village property should take the initiative. Third, the supply of pure wholesome water in quantity sufficient to secure cleanliness and comfort to villages and cottages. I have already addressed the Society upon this important object, and will abstain from repetition. The supply to large towns is an easy matter, compared to the provision

of villages and small communities. But with our whole water supply undergoing change from causes we cannot control, and our village cottagers called upon to pay as much as a penny per pail for water, the subject must soon receive attention. And, fourth, the provision of ground for the recreation of those children which it is by common consent determined should be educated. I will now address myself to those objects in which the upper and middle classes of our rural parishes may voluntarily assist the lower class. Foremost amongst them are benefit societies. Of all things which the labouring man most dreads is his condition in his last days. By subscription to local societies (if well managed) a labourer may, under the present state of things, contrive to obtain the means of support if sickness overtakes him, but a provision for old age is an object which very few agricultural labourers secure. If the earnest interest of the upper classes in a parish could be manifested by taking a part in the management of benefit societies, very great good would attend them, and it would no longer be said that out of the 23,000 friendly societies which exist in England and Wales there are not 20 solvent. By importing into the mode of management the agency of the post-office as a means of securing safety of deposit and of insuring allowances in sickness and old age, as has been proposed by the Rev. J. Y. Stratton, in some interesting articles written by him in *All the Year Round* and in *The Cornhill Magazine*, the extension of such societies would follow. It was with a view to gain this advantage that the Kent Friendly Society memorialized the Postmaster-general last year, and I believe with good effect. All persons who have given their attention to the matter concur in objecting to the meetings of friendly societies at public-houses; and if the higher classes would really take an interest in them, the practice would be discontinued. "Sometimes," says Mr. Tidd Pratt, "the club is sold with the good-will of the house." Beer-house clubs are indeed a great abomination. Some few existing societies are excellent precedents for the establishment of others. The Essex Provident Society has enrolled between nine and ten thousand members, and has a capital of between £70,000 and £80,000; and the Hampshire Friendly Society has upwards of 3,000 members and a capital of £35,000. The Hitchin Friendly Institution, established in 1828, is, perhaps, based on as good a foundation as any in the country, as every member who insures against sickness is also compelled to insure for a pension in old age, an object declared by Mr. Hawkins, its founder and great supporter, to be of "vital importance if the wage-paid classes are to be taught the advantage of respectability in providing for themselves when past work without application to the parish." The next object which the higher classes can help the lower is in establishing and maintaining garden allotments under a provident system of management, by which a labourer, having allotted to him a rod of land, may pay, during his active life, a rent more than sufficient to satisfy the landowner, but which it is quite worth his while to pay, to secure the profit which the gardening of a rod of land will give. In the majority of cases a landowner who would not let a single rod of land to the labourer would let a plot of many acres to the parish authorities, and would be quite satisfied in receiving say £2 an acre, tithe free, which is equal to 3d. a pole or 10s. a rod. If the labourer paid 6d. a pole, or £1 a rod, tithe and rate free, he would be paying double the acreage rent that would satisfy the landowner, and if the surplus was invested through the same agency as that of the "Post-office Benefit Societies," it would accumulate so as to provide the rent of the land after a certain number of years, whereby the labourer in his latter days would hold the land rent free. Thus he would insure one means of support. But such an advantage can only be gained by the combination of the more wealthy parishioners, who together might become security to the landowner for the principal rent. Again, village hospitals and infirmaries, enabling the labouring class who have lived a worthy life to gain proper medical advice and nursing at home, are working well where properly managed, and are fit objects for benevolent co-operation. But besides these, there is still another, in which the upper classes may do much good. We have recently heard much of co-operative societies for reducing the cost of provisions, and preventing extortion on the part of London tradesmen. Without entering upon the question of whether such societies are desirable or beneficial for those they were originally intended to assist, it is quite certain that a modification of them may, with

great advantage, be carried out in villages for the supply of food and clothing to the labouring population in rural districts. At present there has been very little experience in co-operative stores in villages. There is no doubt, however, that the small wages of the agricultural labourer are much reduced by tribute to the local tradesmen; and with so little to spend as the labourer has, it is indeed desirable that that little should purchase as much as it can be made to do. One condition would be paramount, and that would be, that ready money should be the only means of purchase; but as this requirement would produce provident and careful habits it could not eventually militate against success. Associated with co-operative stores there might be established a common kitchen and bakery, at which food might be cooked with economy, and a better knowledge of cooking among labourers' wives acquired. Several efforts of this character are now being made in various parts of the country, but I am not in possession of sufficient information to speak of the results. I trust I may be allowed to close my remarks with an acknowledgment of the assistance I have received from numerous correspondents; among them I may mention Mr. Lawson, of Northumberland; Mr. Briggs, of Yorkshire; Mr. Skelton, of Lincolnshire; Mr. George Jackson, of Cheshire; Mr. Charles Howard, of Beds; Mr. Squarey, of Wilts; Mr. Morris and Mr. Castree, of Gloucestershire; the Rev. Prebendary Breton; Mr. Starge, of Bristol; Mr. Fowler, of Bucks; Mr. Mechi; the Rev. J. Y. Stratton; Mr. Charles Whitehead, of Kent; Mr. Whitting, of Cambridgeshire; Mr. Hagger, of Liverpool; and Mr. James Webb, of Worcestershire.

Mr. FREDERICK WOOD must say, at the risk of being considered a Malthusian, that one of the greatest causes of the miserable condition of the agricultural labourers had not been noticed, viz., their early marriages. It was generally the practice of farmers, if they had occasion to dismiss any hands, to select those for dismissal who were unmarried; and this, and the miserable condition of bachelor farm labourers, drove them to marry much earlier than they otherwise would. He was afraid there would be no real improvement in the condition of agricultural labourers until they were taught to look with more forethought upon so important a step as that of marriage.

The Rev. J. Y. STRATTON could say that beer-house-clubs were a great abomination. He had also stated that while the manufacturing operative had the hope of bettering his condition, and even of becoming, in course of time, an employer, the agricultural labourer had no such hope or object; and if he joined a benefit society, it was not one which would render him assistance in old age. The agricultural labourers of England looked upon the poor-rate as a kind of rent-charge, in lieu of that rod of land which Mr. Denton very properly wished to see them employed upon; and this was, no doubt, one reason for the early and imprudent marriages which had just been alluded to. He believed that, on the average, farm labourers married at the same age as members of the peerage; whereas it would be found that, as a rule, professional men found they must wait ten years longer before they could establish themselves. He did not wish to find fault with the poor-law, but he believed that in the next session of Parliament a commission would be appointed to inquire into the whole subject. The usual form of benefit societies in rural districts was what was termed a sharing-out club, which came to an end and was re-constituted every year, a contrivance by which the burdensome and aged members were got rid of and became ultimately dependent on the poor-rate. It was easily capable of proof that, on many of these sharing-out clubs, men spent more money than would support them in old age, and in greater comfort than was afforded them under the poor-law. It was estimated that, even in the present unsatisfactory condition of the vast majority of friendly societies, two millions a year were saved to the poor-rates by their agency; and this was enough to show what might be expected if an improved system could be introduced. Knowing pretty well the difficulties in the way, a farm labourers' society, in which he held office, one of the oldest and best friendly societies in England, some time ago memorialised the President of the Poor Law Board, pointing out the difficulties which were experienced in carrying out that law, and a memorial was also sent to the Postmaster-general, asking for some system of Post-office friendly societies. This proposal was worthy the attention of all those who were endeavouring to ameliorate the condition of the working classes. In conclusion, he would refer those interested in the



matter to a pamphlet which he had published,\* entitled "Friendly Societies & Beerhouse Clubs," which contained many important facts.

Mr. C. S. READ, M.P., wished Mr. Denton's paper had been read at the meeting recently held at Willis' rooms. He attended that meeting, and from statements made there it might almost be inferred that the English farm labourer was the most down-trodden being under the sun. One of the principal things there advocated was the establishment of trades' unions, which had been so thoroughly denounced in the paper that he need not trouble the meeting further about that question, except to say that, in his opinion, much of the effect of unions was already attained by the general employment of agricultural labourers by the day; the main object of unions was to do the least amount of work and receive the largest amount of pay, and that was really the effect of employing labourers, as was almost exclusively the case, by the day. Another scheme put forward was that of co-operation. Now co-operation between the employer of labour upon a farm and the employed, was visionary and impracticable; but there was one species of co-operation which would no doubt be successful, and that was the introduction of piece work, by which the greatest amount of work was done in the shortest time, and in the best manner. By this system a farm labourer could easily earn 25 per cent. more than on day work; it was usual in Norfolk to pay £6 a month in harvest time, but in putting out his harvest work by the acre, he (Mr. Read) found that his men could earn £7 or £8 a month. There was another matter which deserved special remark, viz., that although labourers in some districts only got nine shillings a week, and in others eighteen shillings, it was quite possible that the last-mentioned earned his money, and that the former was over-paid for the work he did. It should also be remembered that when men were spoken of as receiving 8s. or 9s. a week in the west of England, they often had perquisites which were worth 5s. a week more. There was no doubt that the old poor laws engendered and encouraged pauperism; and he feared that the present law, as it was too frequently administered, would have the same effect, though in a more limited degree. He believed that since the passing of the Union Chargeability Bill, granting of out-door relief had not been watched with the same careful scrutiny as heretofore, individual ratepayers not having the same interest to look sharply after it; he thought the practice of giving out-door relief was increasing, and ought to be most jealously watched. The people of this country ought to be taught not to look to the operation of the poor law for their support in old age; and to this end the upper and middle classes ought to do all in their power to encourage good sound friendly societies. Beerhouse clubs were really a curse to the labouring man, instead of a benefit, and generally failed just at the moment when they were most required. On the other hand, they must not go to such a rigid extreme as to disgust the labourers; for to men who had but few holidays, a harmless frolic once a year, on club day, was very wholesome, and tended much to increase the popularity of the club. There was another fact mentioned in the paper which he considered of some importance, that twenty-five years ago meat was 40 per cent. cheaper than at present; it was just about that time when they began to import foreign cattle, and the result, therefore, appeared to be that they had introduced foreign diseases, that farmers had lost a vast amount of cattle, and that the public had to pay much more for their meat. Mr. Denton seemed to think it rather strange that agricultural labourers were not admitted to the franchise; but they must remember that while the borough qualification had been reduced only from £10 to about £4, that for counties had been reduced from £50 to £12; and if the present bill was spoken of as a leap in the dark, he considered that one which would give the franchise to the agricultural labourer would be taking a jump into the bottomless pit.

Mr. JAMES HOWARD said the gentleman who had spoken of the evils of over-population could hardly have had much experience in rural districts, or, at any rate, he could not have had to harvest some 500 acres of corn. The truth was, that we were beginning to feel the evils of under-population. There were so many excellent points in the paper that he was very reluctant to take exception to anything, but he certainly

thought that rather too bright a picture of the condition of the rural population had been painted. There were yet sadly too many villages and districts neglected by those whose duty it was to care for them; and the noble example set by the Duke of Bedford and others in covering their estates with excellent cottages and schools had not been followed to anything like the extent it ought to have been. There was no doubt that the condition of the agricultural labourer had much improved during the last twenty-five years, and this he attributed, in a great measure, to the improved system of agriculture, under which there was much more demand for manual labour than in the primitive system which it had superseded. The introduction of Swede turnips, and a regular system of root culture, had added millions to the national wealth, by enabling the farmer both to grow more corn and also to feed more stock; and this had improved the condition of the labourer, not only by finding employment for a large number during the summer, but also by providing them with something to do in the winter, when otherwise they would have been idle. The greater facilities for travelling, our large public works, railways, and land drainage had also had something to do with this state of things, and the introduction of machinery upon farms had had a great influence—having broken down that dead level which so long existed in the rate of agricultural wages. When a man was employed to swing a flail which only cost a shilling, 2s. or 3s. a-week difference in wages was a great consideration; but when the same man had to attend to a thrashing machine which cost £400, a difference of a few shillings to a steady, skilful, and trustworthy man was a mere bagatelle. So with the steam-plough. Men were now paid more for sitting on a steam-plough and directing its movements than they formerly were for breaking up the stubborn soil with great labour. The condition of the English labourer contrasted very favourably with that of the French peasant, who, as he had found from frequent observations last year, was generally, on large farms, in the receipt of about 1s. 7d. a day, for which he had to work from four o'clock in the morning until eight o'clock at night, and until noon on the Sunday, whilst he slept in the same hovel with the bullocks. Under such circumstances it was not very surprising to find that most of the men were unmarried, and their whole condition was about as comfortless as could be well conceived. Notwithstanding what had been said by the hon. member for East Norfolk on the effect of the Union Chargeability Bill, he believed it would have a material influence for good on the future of the labouring population. Under the former state of things, landlords had a direct inducement to pull down cottages instead of building them; but under the present system all that was changed; and this was very important, for one of the main things which ought to attract the attention of the landed interest was how to increase not only the number but the quality of the habitations of the poor. Under the present Act the labourer was freed from the serf-like necessity which bound him to his own parish, and he was able to travel over the union in search of employment; and he (Mr. Howard) hoped the day would soon come when this limit would be yet further extended.

Mr. C. S. READ asked leave to explain that he did not object to the principle of the Union Chargeability Bill, but only to the mode in which relief was too often administered under it.

Mr. J. K. FOWLER (Aylesbury) said, beginning with the question of labourers' dwellings, he believed that was one of the most difficult things that had to be considered. They had heard what was the cost of a decent house; and he need hardly say that it was impossible for an agricultural labourer to pay, as rent, interest even on £140. He had had, through his landlord, to build one or two cottages, and he found they cost from £130 to £140 each—for they ought all to have three bedrooms—and this represented a greater rent than the men could pay; but he believed the tenant-farmers would willingly co-operate with the landlords in this matter, and take upon themselves the rental of any reasonable number of cottages, to be included in the rent of the farm and buildings, which they would let to their men at a moderate rent, and also give them garden-ground to cultivate. He gave each of his labourers half-a-rood of the best land on the farm, as near as possible to the farmyard, and told them to take whatever manure they wanted; and once a year, when "harvest-home" came round, they had a little exhibition of the garden produce. All this had a most excellent effect in keeping them from

\* Ridgway, Piccadilly.

the beerhouse, and in encouraging habits of independence and industry amongst them. The question of wages was one that would settle itself, especially where a man was no longer tied to his own particular parish, but allowed to go to an adjoining one, where he thought he could find a better master or higher wages. With regard to what Mr. Denton very appropriately named "practical education," that was a point which could not be too much insisted on. Being very anxious that a good ploughman in his employ should be taught even further excellence, he got his friend Mr. James Howard to have him taught; and the result was that at the next county ploughing match he won the first prize, and a great deal of attention was excited amongst the other men to see how he set his plough and went to work. He believed that the agricultural labourer, if properly educated, might be made as good a skilled labourer as any man in the manufacturing districts. He (Mr. Fowler) was now using the steam plough, and every man engaged in attending to the machinery, including the one who drove the engine, was, a few years ago, an ordinary agricultural labourer. Mr. Denton had spoken of bakeries for the benefit of the men, but he did not well see why they should not have public breweries as well, so as to avoid the bad beer so much complained of, only it would be quite necessary that the present oppressive malt-tax should be removed. The supply of water to the dwellings of the poor was of even greater consequence than that of beer, and should never be overlooked in the erection of cottages.

Mr. C. WREN HOSKYNs regarded the whole question very much from a point of view which had not been touched upon, and which he could not pass by in absolute silence, namely—the position which, in regard to the constitution of the whole order of English society, the agricultural labourer held in the body corporate. They had a body of laws relating to landed property, which were peculiar to England, which they had attempted to enforce upon the colonies and to establish in India and America, but which had broken down in each of these instances, and which existed in no other country in the world with the exception of portions of Austria and Russia; he referred to the laws which tended to the aggregation of land into large and still larger territories—he could not call them estates—of from 5,000 to 10,000 acres, and which it was morally impossible could be farmed by the proprietor. It had, therefore, to be let out in portions to tenant farmers. If these tenancies existed for the term of human life, or even for twenty-one years, or any such term as would give something like a feeling of proprietorship, it would matter little who the owner of the soil might be in reality; but at present the effect was to make all the efforts of the farmer point to those discoveries which suited his circumstances, and would enable him to make the most out of the land in the shortest time. He admitted that this system was very satisfactory to farmers and proprietors; but there was one individual who would raise his voice against it if he had the power, and that was the one whose condition they were discussing—the agricultural labourer, whose position was such that he did not come in contact with the owner of the cottage which he inhabited, or of the land which he tilled. The tenant who employed him held his lands under such conditions as compelled him to make the most out of it in a short time, and with the least expenditure of labour; and, under these circumstances, he did not stand on equal footing with the man who came in contact with the actual owner of the soil; and, in fact, those men who were employed about the gardens of the proprietor, were always in a better position, had better wages and dwellings than those who worked for the tenant farmer. The latter was not able really to influence the condition of the labourer; the cottage in which he lived did not belong to him; the farmer might leave the farm and the labourer stay, or the labourer might leave while the farmer stayed; there was no life-long relation between them of that kind which rendered the man's condition an improving one, because of his labour becoming more appreciated. He thought, however, their condition was capable of great amelioration, and no doubt machinery operated in agriculture the same as in trade, though the conditions were not exactly alike, because in the one case there was the power of almost unlimited production, while in agriculture the production though not so limited as some might suppose had a definite limit. He should most gladly see any system established which would improve the condition of the

agricultural labourer, but he thought more good would be done by commencing at the other end of the chain of causes, and endeavour to obtain some alteration of that system which was tending to larger and larger aggregation of estates. One point in the paper and discussion he had noticed with much pleasure, the importance of technical or practical education. He had himself seen the work of a farm done altogether inefficiently, simply because every one was trying to do everything, and because the system seemed to be a miscellaneous one by putting any man to any employment. If there were more subdivision of labour on farms he was certain good results would follow, and one of the main advantages of technical education would be that each man would be able to do at least one thing well, instead of a great many things indifferently.

Mr. S. SIDNEY said Canon Girdlestone had proposed one of the few things which would really do the labourer good; when he found that in one parish or district the wages were very low indeed, he recommended the men to go elsewhere, and that was just what caused the great superiority of mechanics to farm-labourers; they were much better educated, not so much in the way of reading and writing, but in knowledge of the world, and how best to provide for themselves, and improve their condition. The agricultural labourer must not be limited to the mere bounds of his parish, as was now too often the case. The fathers of his (Mr. Sidney's) friends the farmers were anything but alive to the advantages of education; they did not like a labourer who had an idea beyond his own parish.

Sir GEO. JENKINSON had not heard the paper, but Mr. Hoskyns had admitted that large owners were the best employers of labour. He understood him to say that in the neighbourhood of large owners the labourers were well paid and cared for, and lived in good cottages, but that the reverse was the case where tenant-farmers were occupiers; and what was the inference, but that where there was most capital there would be the best remuneration for labour? He did not believe education would enable a man to till the ground better than his fellow who had had no education. An exemplification of this was to be found in the case of railway navvies. There were no men in the world who had so much physical ability to do an enormous amount of work; they laboured from Monday morning until Saturday afternoon, and, as a general rule, were drunk from Saturday afternoon to Monday morning. They received enormous wages, and consumed an enormous amount of beef and beer, and did far more work than any agricultural labourer; but what enabled them to do so was not education, but the amount of food which they consumed. In the same way, education would not enable the agricultural labourer to do more work. He was, however, not the less an advocate for education, which it was the duty of the upper classes to give to those below them, but he did not like the question put upon a false issue. He had lately seen in the papers the detailed case of a man with a large family of ten children, the eldest of whom earned 3s. 6d. a-week; and when the man was asked about sending the lad to school, he replied that it was not the question of the penny for the schooling, but of the 3s. 6d. which he earned, and which made just the difference between living and starving. That was the great difficulty which had to be met with in reference to education, and which, he thought, it was impossible to get over.

Mr. J. BENNETT had a farm in Sussex, on which he employed some seventy men, but he found it a growing difficulty to provide habitations for them, and some had to walk four miles to their work. He could not get a bit of land on the roadside on which to put up any cottages, and he did not know how to remedy the evil, which was a very grave one. Mr. Hoskyns had alluded to the land laws, but he thought the game laws had also something to do with the question. The great landowner attached much more importance to the game than to the condition of the labourer, and would not have a cottage in this place or that, lest the game should be interfered with. As to the state of education, he (Mr. Bennett) had offered a shilling to each of his men who could write their names, but not ten of the seventy could do so, and the question was, how this ignorance was to be overcome. In some places the parson would assist them, and in others he would not, or could not, and then the case was hopeless. Some of the clergy were afraid of the men becoming too independent, and thinking for themselves; and the squire thought education would make them saucy, and that if they learned anything beyond the

limits of their own parish they would draw comparisons, and that when improvement once began they would improve themselves off the land altogether, and go where they believed they would be better off.

Mr. W. HAWES (the chairman) said it appeared to him that Mr. Read was not sufficiently informed about trades' unions when he spoke of the system of day work having the same effect, which was enabling the men to do the least work and have the highest pay. The object of trades' unions was to bring men together to agree to a uniform rate of pay, which they thought most conducive to the welfare of all; and he could not agree that the effect of trades' unions was such as Mr. Read had stated it to be. Then the same gentleman went on to trace the effect of legislation in introducing foreign cattle, and drew the inference that that had been the cause of the increase in the price of meat, stating the price of meat so many years back; but he forgot that there was an intervening period when meat was quite as high as at present, long before the operation of Sir Robert Peel's Act—certainly long before the introduction of contagious diseases by foreign cattle. The fact was, that if the importation of foreign cattle had been injurious, they must not forget that long before the disease was introduced hundreds of thousands of foreign cattle had been imported, of which the country had had the benefit.

Mr. C. J. READ said he had not alluded to the cattle-plague but to pleuro-pneumonia and other diseases of a similar character. The CHAIRMAN said that if the state of the case was as bad as Mr. Bennett seemed to think, it appeared almost hopeless; but if the labouring classes did, as he believed they would, gradually improve, there would be an increase of produce from the land, and the whole class would rise considerably in the social scale. No one seemed to have noticed that which he (the Chairman) principally relied on—the appropriation of a certain number of hours to

general education, and a certain number to practical instruction in farming pursuits, so that in a few years they would be in a position to earn the highest rate of wages in their calling. Then there was the question of the improvement of their dwellings, which had been taken up by this society again and again, plans having been prepared, and every possible scheme suggested for reducing the cost, but they could not bring it within £130: they could build a hovel for a great deal less, but not a cottage fit for a labouring man to live in. If they had improved dwellings, and the other things which had been mentioned, gardens and friendly societies, and co-operative stores which might do a great deal in enabling them to supply themselves on the lowest terms, they would soon be in a much better position; and above all, if they could induce these men, not by legislation, but by showing them the benefit of it, to abstain from the beershop, their greatest enemy would be conquered. They must not go away with the idea that the navy was such a deplorable creature as the hon. baronet had painted him: they were not, as a rule (and he knew a great deal more of them than of agricultural labourers), drunken or unintelligent men—they were one of the most intelligent class of workmen in the country. Take a navy abroad, and he was the most valuable man you could get. Place him in circumstances of great difficulty, requiring coolness, intrepidity, and perseverance, and the behaviour of these men was most remarkable. The great works of the country could not have been accomplished but for the energy and discipline which existed amongst them. Most of them had attended national schools, and had a certain amount of real education; and it was this combined with their practical knowledge, which made them such valuable workmen. There were drunken navvies, no doubt; and in this, as in other cases, people were apt to judge a class by a few.

A vote of thanks was passed to Mr. Denton.

## THE MANAGEMENT OF CATTLE.

On every farm on which a profitable course of alternate husbandry is being successfully carried out, the connection between corn and cattle is inseparable. Corn may for a succession of years be low in value, yet it must be grown to provide food and litter for the animals of the farm, so that there may be no break or interruption in the supply of manure. The foundation of modern farming where success is aimed at is manure, unsparingly and ungrudgingly applied; but little can be accomplished without it, and no process or system of cultivation, however elaborate, has been discovered, or is likely ever to be, which would do away with the necessity for its use. The most fruitful source of manure within reach of the farmer is the stock of cattle kept on the farm, the quantity made during the season being more or less, according to the number of animals kept, and both quantity and quality varying to a much greater extent than is generally supposed, according as the food supplied to the stock is nutritious or otherwise. The dung of poorly-fed animals is hardly worth the trouble of carting out, being but of little other use than serving to keep certain soils open, enabling the air to circulate, and so act beneficially by its ameliorating and disintegrating influence. The dung of well-fed animals, containing as it does all the elements of nutrition, not only alters the texture of the soil, but enriches it, the effects of a dressing of pure dung from highly-fed animals being immediate, and also to some extent permanent. Taking advantage of this principle in the character of farmyard manure, we find that the leading agriculturists of the present day base their success on liberal feeding, expending large amounts on the purchase of concentrated food, besides supplying abundance of that which is home-grown. The extra profit obtained on the stock fed with these substances would scarcely ever repay the feeder, did he trust to that alone; and he therefore looks to the extra value of the manure to recoup him for his outlay. A farmer without having the slightest knowledge of chemical analysis can, in the laboratory which nature has provided, easily experiment for himself, and ascertain without the slightest risk of failure the exact difference of value between a load of manure made by animals in good

condition and liberally fed, and the same quantity from animals in poor condition and living on food of poor quality, even although they may be getting as much of it as they will consume. In this instance one trial is sufficient, as it will be speedily proved that a single load of well-rotted pure *manure*, such as we have described, will give better results in the field than three when the beasts have been poorly fed. The difference is especially noticeable with crops of quick growth, such as Italian ryegrass, tares, &c.: the crop is heavier far; and, again, what is of almost equal importance, the crop is forced forward with such rapidity by the superior excellence of the manure, that a fortnight at least is gained at a period of the year when a supply of succulent fodder is oftentimes urgently wanted. Manure, therefore, being constantly in demand for the purpose of keeping up the fertility of the soil, and cattle being the principal source of production for this valuable and indispensable constituent in agricultural economy, there ensues that connection between corn and cattle husbandry, which, under ordinary circumstances, renders them inseparable. We thus find that cattle, whether they pay or not, must be kept by the arable farmer who desires to be successful in his business; and he is the most prosperous who, keeping a stock of cattle, makes that stock profitable—not only in a secondary or subsidiary sense by the assistance they render him in raising paying corn crops, but also makes a separate, independent, and clearly-ascertained profit on every animal of which that stock is composed. We have at least one very high agricultural authority holding the opinion that this cannot be done, and that the farmer must look to his corn alone for all the profit he may legitimately expect from his live stock; we have, however, an equally high authority holding quite the contrary opinion, and we ourselves, judging from our own experience, look upon all farming as a very miserable affair, where no profit is derived from the cattle kept except that obtained through the manure which they supply and the increased quantity of corn the farmer can by its assistance be enabled to grow. It is our opinion (and one which we feel assured is shared by most practical men) that

the British farmer has not the slightest reason to dread that the home-production of meat will ever be over-done, or that it can ever exceed the demand except for exceedingly limited periods. Bad trade, for instance, by lessening the amount of money circulating in the country, has frequently the effect of reducing the price of meat by a decreased demand, and the value of live cattle is consequently somewhat affected thereby. Corn, keeping at high rates for a season, also to a perceptible extent limits the consumption of meat, and has while it lasts a correspondingly depreciating tendency. Either of these influences however are seldom so powerful or so long-sustained as to affect the average of a whole year to any appreciable extent, the intervals during which meat remains low being usually so short as to enable the stock-holder so to manage his home-arrangements as to secure at least a good average, if not the very highest quotations for the year. Judging from what has taken place during the past year with reference to the introduction of fresh meat from foreign countries, it is not improbable but that we may very shortly have considerable importations of that article in a condition that will enable it to enter pretty freely into consumption in Great Britain. The principal sources of supply—Australia and South America—are however so distant from this country as to almost preclude the possibility of its being sold at such a price and in such quantity as to effect in any very sensible degree the interests of the British agriculturist. However well the preserving process may be accomplished, it can scarcely be expected to be equal to meat that has been fed and slaughtered at home; and in all likelihood it will tend more to increase the consumption of meat amongst that portion of the population with whom it is at present but little used, rather than to displace it on the tables of those who at present are the largest consumers. It is a matter of extreme difficulty to obtain for imported meat a permanent position in the markets of this country; the slightest difference in colour, texture, taste, or (what is perhaps most important of all) *smell*, to the home-article which it represents, and which it is expected to some extent to supplant, forming an almost insuperable barrier to its successful reception by the British public. Tastes must be acquired and prejudice overcome before it will be generally accepted, and this too after scientific men have been engaged in laborious investigation, it may be as in the present instance for many years, in solving a mode by which the meat can be preserved and transmitted. Science, truly, can and has surmounted many difficulties and vexatious perplexities, but is comparatively powerless in creating new tastes or subduing prejudice, a notable example in proof of this being afforded by the recent attempt to introduce the use of horse-flesh into England as a means of increasing the meat supply, and thereby lowering the price of beef. The publication of Mr. Frank Buckland's letter has apparently given a complete quietus to the organization which had this for its object, no more having been seen or heard of it—at least in the columns of the public journals. Yet here science did its utmost, the most skillful men in their profession having been procured to prepare the banquet (so called); but all the modes of preparation with which these artists were acquainted, combined with the most piquant and appetizing seasonings, could not overcome the prejudices of the guests, or prevent their subjecting each delicate morsel to an olfactory test before submitting it to the scrutiny of the palate. When intelligent and cultivated men could make such a poor dinner on this meat, and it, too, so well disguised, it is hard to suppose that it would be accepted by the class its promoters expected it to benefit, who, as a class, are above all men notoriously difficult to please, and whose prejudices in regard to new or untried articles of food are much more deeply rooted, and probably more difficult to overcome than even the higher classes. One could easily imagine the howl of derision with which any gentleman would be met who proposed to his servants to dine off a roast loin of colt or filly which he had slaughtered for home-consumption, having for some reason or another found the animal unfit for any other useful purpose; or again, did he inform them that having fattened-up a superannuated carriage-horse, for the purpose of being utilized on the table of the servants' hall, it would require but little stretch of imagination to suppose that they one and all gave him warning on the spot, and that he was politely requested to provide himself with a full retinue of new servants on that day month. Anyone who knows anything of the difficulty experienced in getting servants to eat beef or

mutton which has been killed on account of injuries from kicks or other accident received in the field, and which they have in some way or other got an inkling of, can form a very fair conception of how any new and particularly economic article of food would be received, whether that was home-raised horseflesh, Australian mutton, or beef from the South American prairies. Well-paid tradesmen in towns and large cities, and well-to-do country people, are all equally particular about the quality of their meat, few being willing to take anything but prime joints, when the state of their eschequer permits of its being done, preferring rather to go without when they cannot do so. Taking everything connected with the habits of the people into account that bears upon the consumption of meat, and consequent demand for cattle, there appears to be but little danger for many years to come, if ever, of any farmer rearing cattle which will not reimburse him for the trouble and expense he has been at in bringing them to the selling point, both in the fertility imparted to his fields by the manure he has made by their means, and by a separate profit upon each animal, after charging it with the full value of the food consumed. To ensure success, it is essentially necessary that everything connected with the management of the stock should be done in the best possible manner, every minutiae being observed which has the slightest tendency to conduce to their welfare and progress, and so facilitate the end in view. The object of the present paper is to review a few of the leading points necessary to be attended to in the management of cattle on an arable farm, where the cultivation of corn and the breeding, rearing, and feeding of cattle are simultaneously carried out.

Spring is a period of the farmer's year, during which his attention must be devoted more particularly to the care of his live stock. At that time the bulk of his breeding animals are dropping their young. The comfort and health of the mothers and the welfare of the little creatures newly-ushered into the world must therefore be looked after with more than ordinary assiduity. When he has had the forethought to take the trouble, and go to the expense of procuring good sires, the extra labour involved, instead of being felt as a burden, becomes a source of real pleasure, the owner feeling satisfied that under ordinarily fortuitous circumstances his prospects of remuneration are all he could possibly wish for. In cattle breeding, the selection of the male should be gone about with no spirit of parsimony, but rather with an excess of generosity and thorough determination to secure a first-class animal whatever the cost. The influence of the male on the character and value of the future produce is now so well known and generally understood and acknowledged as to make it really surprising that a cross-bred brute should be used by any one at the present day who has such a number of animals in his herd as to warrant the keeping of a valuable bull. Whatever the breed, there is no better investment of capital by an agriculturist than that expended in the purchase of a sire of good descent, the profits being not only large, but continuous, the influence of one really good animal extending for years. Although it is desirable in a milking stock to have the bull descended from a line of cattle famed for their milk-producing properties, that feature in the character of a herd being also transmitted, it is not nearly so important as when the object of the breeder is purely the production of beef. That the produce of a cross-bred bull often turn-out excellent milkers, is a fact easily proved, as many owners of dairy-stock take very little trouble about the selection of a sire, paying but slight attention to his breeding, providing he is moderately straight and level along and over the back, of a good colour, healthy-looking, and cheap. On account of this indifference and seeming negligence on the part of stock-holders, the animals, in numerous cases, are so altered in form, colour, and general configuration, that it is impossible to recognise the breed from which they originally sprung. Notwithstanding this peculiarity, the milking property is seldom injured to a perceptible extent, many of the cows composing such a herd being extraordinary milkers. It is, however, very different when the herd is maintained for the purpose of raising stock to be fattened for the butcher, as the use of any other than a highly bred bull becomes then simply a picking of one's own pocket. It must be admitted that useful beasts for the stall are often to be met with, neither the sire nor dam of which was pure bred; but, all other things being equal, the superiority of those animals, the sire even of which has been pure bred, is so marked as scarcely to admit of

comparison. Without a particle of extra care, pure breeding conduces to economy of food, to laying on flesh quickly, and to early maturity. The advantages derived from these distinguishing characteristics are numerous and valuable, but all tending to one pleasing result, viz., the increase of the farmer's capital. A half-bred heifer, the sire of which was pure, can be easily finished for the butcher at the age of two years, bringing as much money then as one of three years, which had the disadvantage of being cross-bred by both sire and dam. Here there is all the expense attendant on the maintenance of a large animal for an entire year saved—in itself an immense thing, quite sufficient to enrich the farmer who takes advantage of it, and to impoverish him who neglects it, particularly now-a-days, when excessive competition for land, and dear labour cut down the farmer's profits to the lowest possible point.

Britain possesses several local breeds of cattle for meat-producing purposes, a few of the more noticeable being the Hereford, Devon, Polled Angus, and West Highland, all good, some of them indeed of rare merit, as the Hereford and Angus, but mostly confined to the districts from which they derive their name, and difficult to be got pure in any other part of the country, unless with a fancier of the breed. The Shorthorn, which would seem by general acceptance to have been received as the breed, of cattle most suitable for the improvement of existing breeds is now to be met with in great perfection in every part of the kingdom. By whatever name a cow may be designated—whether Ayrshire, Kerry, Highlander, or cross-bred—or however shabby and insignificant she may appear, if crossed by a pure-bred shorthorn her produce will partake so much of the character of the sire as to make it, with fair treatment, both useful and profitable. Even to the very fastnesses of the Highlander himself has the shorthorn penetrated; and excellent butchers' cattle, the produce of a Highland cow and shorthorn bull are yearly fed in the western islands of Scotland, and sent round by steamer to Glasgow. The distilleries on these islands afford a good supply of food in the shape of grains, these styled draft, on which the cattle thrive well, and require but little outlay for oil cake, turnips and grains being able to finish a heavy beast with but little assistance from the more expensive article. No particular difficulty need be experienced in getting a useful sire of shorthorn blood, pure stocks being now so equally distributed over the whole kingdom. The expense, also, is not by any means great, when the value of the breed is taken into consideration, the days of extravagant prices being numbered, unless for stocks of very high character. During the past few years many herds of shorthorns have been founded, and managed on more sensible principles than was originally the case. Formerly it seemed to be supposed by every possessor of a herd of shorthorns that as the breed was capable of carrying an almost unlimited amount of flesh, it therefore became absolutely necessary so to pamper each animal that it might become a specimen of what the breed would attain to, and the enormous load of meat it could be made to carry. This was frequently done to such an extent as to reach the stage of actual cruelty, the poor beast's very existence being a burden; and thus money was not only spent uselessly, but the animals, both male and female, were often so injured by excessive obesity as to be unfit for anything but slaughter. Now, however, the breed having got into the hands of men who cannot afford to measure the treatment they give their cattle by any other standard than that of pounds, shillings, and pence, pure-blooded specimens can be had, which have been rationally treated, thus combining two important advantages, their constitutions not having been impaired by over-feeding, they are eminently suitable for reproductive purposes; and the cost is greatly less. A young bull of either Booth or Bates blood, and a good one too, can now be got for thirty guineas, which, having been used to the ordinary food of the farm, is in no danger of falling away when removed to other quarters, but, on the contrary, having a tendency to improve, especially if his new owner is disposed to be kind to him, which is extremely likely to be the case. Thirty guineas is a large sum for a man of limited means to give for one animal, whatever its merits, or however much benefit he may look forward to by the use of that animal; yet for the small farmer, whose stock consists of but ten or fifteen cows, the possession of a pedigree bull is so essential to his interests, that the getting of one is worthy of a strong effort on his part. Two

neighbours who are on friendly terms can serve each other very materially, by joining in the purchase of a bull, thus dividing the risk, lessening the amount to be expended by each party to half, and thereby probably bringing it within reach of both, and doing the business required to as much purpose as if both had got a bull. In a partnership of this sort, an animal cast by a wealthier neighbour may often be procured, giving them the advantage of having one of whose merits they have had previous opportunity of forming an opinion—a point of no inconsiderable value. Such a bull, being come to his full growth, and consequently weighty, will in general bring his first cost when sold to the butcher; so that, by a little management, the services of a pure-blooded bull can be had at no further expense than that incurred by feeding him during the short period he is required on the farm. Surely the importance of this matter ought to be sufficient inducement for a farmer to take a little extra trouble in looking about for a really useful beast, instead of contenting himself with a mongrel, whose produce at twelve months old will be worth not more than two-thirds of what they would have been had a pedigree-bull been used, the treatment being in both cases exactly the same. One of the most useful bulls we have known was repurchased, when four years old, by his breeder for £25, from a party to whom he was sold when a calf for one hundred pounds. The breeder having seen his produce knew his value, and got him just at butchers' price, and the animal was subsequently so valuable that he would not part with him for three hundred. This was, of course, an exceptional case: the breeder being an excellent judge profited by his knowledge, and prized highly what another discarded. An ordinary farmer could not make such a lucky hit very easily, but following this example, and acting upon the same rule, would be largely benefited by introducing blood into his stock at comparatively little outlay, the high price of which under any other conditions would keep it beyond his reach. Having gone to considerable trouble and outlay in introducing good blood, it is highly necessary and well worth while for any one who has done so, to pay an increased amount of attention to his cows during the period of gestation, so that, apart from circumstances over which he has no control, they may get a fair chance of bringing into the world a fully matured and healthy calf.

It is intensely galling to lose the well-earned fruits of skill, capital, and labour through the carelessness or inconsideration of those in charge of the animals; but there are certain disturbing influences quite out of the province of the attendant, and which every owner of stock should do his utmost to guard against, or if they exist to remove them, as far as lies in his power. Uneven passages to and from the fields or to drinking-ponds are injurious to cows heavy in calf, and should be kept as even and smooth as the nature of the surface will permit. Narrow doors from the stalls are also highly prejudicial to the cow and her future offspring, as in spite of the utmost care cattle will crush each other when going out and in, so much so as in many instances to inflict extensive local injury by the excessive straining. Where a large or even moderately-sized stock is kept the utmost facility for entrance and egress ought to be allowed, the doors or rather gates being wide enough to admit an ordinary cart, and placed at convenient distances. Strict attention to ventilation and good drainage will also be given by the careful and considerate owner of a breeding stock, and if a constant circulation of pure air is kept up, one of the most fruitful causes of abortion is neutralised, viz., foul air. Some attention is required to be given to the feeding while turnips form a large portion of the diet, as a cow will readily slip her calf after feeding heartily on cold roots, if the stomach has been comparatively empty. Giving the hay or straw with which she is supplied in addition, the first thing in the morning, counteracts this tendency in a great measure. No trouble ought to be considered too great which has for its object the prevention of cows prematurely slipping their calves, as when it begins in a herd it seldom leaves it without inflicting extensive injury and consequent loss.

The cow having produced a full-timed, healthy calf, the leading idea of its owner in connection with the young animal should be to keep it so, and this is in general attained without much trouble, save by providing it with airy and comfortable quarters and a plentiful supply of nutritious food. To ensure from the very commencement of its existence a healthy organization, it is a good plan, when it can be managed, to permit

the calf to suck its mother for the first few days—that is, until the milk has assumed its natural colour and become fit for use. Although excellent in theory, this is especially difficult to carry out in practice; the instinctive feelings of both dam and offspring having been aroused, it is some time before they can be got to forget each other, and unpleasant consequences are apt to ensue when the separation has been effected. The calf having for these few days been accustomed to drink with its head elevated, it is hard to make it understand that the operation can be quite as comfortably performed with the head down, and it displays considerable obstinacy on this point. A little hunger soon brings it round, and leads to the required alteration in the habits and instincts of the little creature; and it is much better to give time, and leave it to the teachings of hunger, than compel it to keep its head down by main force. In the case of the cow more is to be apprehended than a little annoyance, there being positive danger of present loss and permanent injury when she has taken kindly to her calf, and resists the separation. In constant expectation that she will be permitted to rejoin it, she retains the milk, in spite of repeated and long-continued efforts to withdraw it by hand; and when thus retained severe inflammation is immediately set up, and the poor animal is in imminent danger of losing a quarter, or, in extreme cases, a half of the udder. The moment it is noticed that the cow is holding her milk, the calf should be allowed to suck, so as to relieve the pressure and prevent inflammation. The udder being thus softened, the milking may with great propriety be finished by the dairy-maid. This may be continued for a few days, until it is known, by the softness of the bag and the uninterrupted flow of the milk, that the danger is past. Should the calf not be re-admitted, or even delayed so long that the swelling has become intensely painful, the opportunity for relief in this manner is lost, and the udder must be softened by fomentation with hot water and the application of soothing and repellant ointments, involving a considerable sacrifice of both time and trouble. The probability of symptomatic fever of this kind occurring from partial or total suspension of the milky secretions renders a system excellent in theory, highly objectionable in practice, and in consequence the calf is, in most cases, removed to his own crib immediately after having been licked dry by the mother, the connection between them never again being renewed. This, of course, particularly refers to stocks where profit is looked to from the dairy, as well as from rearing, as in districts where the latter is the principal object the calf is left with its mother until reared. The calf now being dropped, it may reasonably be thought that it must be a very poor one indeed, if not worth rearing, providing the sire has been well selected and the dam ordinarily good. Yet even under the most favourable conditions with regard to the parents, there will now and again be calves dropped not worth the trouble and expense of rearing, particularly in the case of male calves, whether intended to be kept entire for breeding purposes or for feeding for the butchers as bullocks. It is well, therefore, that a little judgment should be exercised, and each calf subjected to a rigid scrutiny before any expense is incurred, as an ill-thriven animal is not only a loss, but a positive eyesore while it remains on any farm. It is much better to send an excessively narrow-backed, flat-ribbed, or drooping-rumped calf at once to the butcher, and get a few shillings for it, than keep it on and risk the loss of pounds by feeding it for several years, consuming food which might otherwise be profitably employed in feeding an animal which would by its superior conformation have a fair prospect of leaving something for its keep. A delicate-constitutioned cow may often be worth holding over for her superior milking qualities; but unless of a rare breed, when it may be worth while to run a little risk, her offspring are seldom worth the trouble of rearing. While milk is plentifully supplied to it, such a calf will often look as well as its comrades, and have all the appearance of thriftiness; but if it inherits its mother's delicacy, which it almost invariably does, it begins to fall away from the time that it is turned out to shift for itself. If it survives the winter it is mostly a gaunt-looking object, with not the slightest appearance of ultimately becoming either valuable or profitable. Well-bred cows and those which have been long milked, however bred, frequently drop their calves very small, in some cases remarkably so. When well-formed, healthy, and full-time this is not particularly objectionable, as liberal treatment soon pushes them on, a few weeks being sufficient to bring

them to the standard of those of the same age, which were an average size when dropped. It is very necessary when a considerable number of calves are being reared together to confine them in separate cribs so as to prevent their sucking each other, a habit as disgusting to the on-looker as injurious to the poor animals themselves. Where not convenient to have a crib for each calf, a little collar could be provided and slipped over the head of each one as soon as fed, the fastening being just as far distant as will prevent contact. The confinement when the warm weather has arrived, and their owner is desirous of putting them out during the day, need be only temporary, as the intense desire which they evince for sucking is shown most strongly for half-an-hour or so after being fed. When this habit is not prevented there is almost a certainty of a few deaths occurring each season from the hairs thus taken into the stomach collecting into an indigestible mass, the poor things dying in frightful agony. The indestructible nature of the materials forming this ball renders a cure next to impossible; prevention is therefore all the more necessary to be attended to, and there is no better preventive than the modes of temporary separation we have now described. Although nature indicates that milk warm and unmixt as it comes from the cow is the natural and proper food for the calf, yet for certain reasons of economy and convenience large numbers are annually reared and get scarcely more of their mother's milk than is absolutely necessary to clear out the stomach, and give them a healthy start. When the farmer is so situated as to have a good market for his milk, and a remunerative price for it, he is tempted to sell the greater portion; and if at the same time he is desirous of rearing a good many calves, he finds his ingenuity taxed to procure suitable substitutes for their natural food which he has otherwise disposed of. Oatmeal, linseed and Indian meals are excellent aids, boiled and mixed with a little milk, and when given plentifully, good, useful, hardy, and healthy cattle can be raised with comparatively little trouble. Infusions of hay and gelatinous mosses are sometimes used in rearing calves; but they do not contain sufficient nourishment, are too sloppy, and the calves grow up deficient in bone, pot-bellied, and generally unthrifty. In butter dairies the pure skim-milk without any mixture whatever is the food of the calves, and when given in sufficient quantity answers the purpose admirably, strong healthy beasts of good bone being thus raised. They seem to relish the milk better, and thrive faster when the milk is supplied to them after having become coagulated, than when given merely sour, but not thick. Notwithstanding the efficiency of these substitutes for the genuine article, and the amount of success attending their use, the animals cannot be brought to the same perfection or to such early maturity at full prices, as is the case when the milk is used fresh from the cow. So true is this, that it may be fairly conceded that when the breed is valuable, and early maturity for the butchers a leading object, the full amount of profit obtainable from the stock cannot be reached when the calves are not wholly reared on new milk. A familiar example of its forcing powers is to be met with at every agricultural show, where shorthorns occupy a prominent position, the class of yearlings being so well-grown and their shapes so fully developed as to present all the appearance of mature cattle, while their condition is such that they are fit for the shambles. We have seldom so fully realised the striking effects of pure milk fresh from the cow in feeding calves, and the ultimate advantage to the stock thus reared, in elegance of contour, aptitude for feeding, and general hardness of constitution, as we did in one particular instance, when on a visit to Scotland in the autumn of 1865. In the districts we visited, comprising portions of four counties—viz., Stirling, Lanark, Renfrew, and Dumbarton—the dairy takes a leading position on most farms; and, stimulated by the constant demand for its produce, the farmers are unremitting in their efforts to keep up the supply of milk with regularity throughout the year. The Ayrshire breed is very generally diffused over these counties, no other being valued for the dairy; and, accustomed as we have always been to Shorthorns and Short-horn crosses, the calves we there saw looked singularly diminutive. On hearing the good qualities of the breed from which they were descended described by their owners, and a high value set upon the little creatures themselves, we found considerable difficulty in appreciating their qualities and value—in fact, could not do so until taken to the byre at milking.



time, and shown by ocular and unmistakable demonstration that a little cow, with udder so near the ground that there was barely room for the milking-pail, could give such an overflowing quantity of milk as to render her valuable for that quality alone, independent of all other considerations. Although the size of the Ayrshire breed, whatever the age, sex, or condition, seemed to us remarkably small, still it was not so in every instance, as on one farm in Dumbartonshire, which we visited, we were particularly struck with the large size and general sappiness of all the cattle on it, in comparison with those of other districts which we had previously passed through. Seeing that they were all of the pure Ayrshire type, we asked the tenant why there was such a difference? He replied that it was solely the result of liberal treatment during the first four months of their existence, as he made a point of looking after his calves himself, and gave them new milk, without the slightest adulteration or admixture, for the above-mentioned period. New milk there brings, on the average of the year, tenpence the imperial gallon; and when it pays in the end to give it to calves, when such a price can be had, surely it would doubly repay those to do so, who, living in remote districts, can perhaps only make a little more than half that price for their milk. We have seldom enjoyed a day with more intense enthusiasm than that spent on this farm, in the society of its occupier, and still look back upon it as a green spot in what was altogether a most pleasant and gratifying trip. Situated in the midst of a beautifully-cultivated district on the northern shore of the Frith of Clyde, with much to instruct the mind in an agricultural point of view, there was also much to delight the eye as it roamed over the horizon. Underneath flowed the classic Clyde, bearing on its placid bosom a numerous fleet of ships of all sizes, from the princely merchantman down to the crowded river-steamer and the Highland wherry. Quite in view was the ancient Castle of Dumbarton, celebrated in old historic records as the scene of brave deeds, and mayhap cruel ones also. Through the populous and busy Vale of Leven, the little river immortalized by Smollett can be seen threading its silvery course on to where it mingles with the Clyde. Northwards the lofty Ben Lomond is plainly seen bounding the view, rearing his even-then snow-capped head in undisputed possession of a vast but solitary territory. The calves however reared are at the age of four months able to find a subsistence for themselves when turned out on the pastures, and to enable them to continue progressing in growth and healthy condition require good grass and a plentiful supply of water. Abundance of food should be the motto of every stock-holder, and that during every season of the year; and on no account should he permit an interval of scarcity to occur when changed from the milk to other feeding, or at the close of the season when the pastures begin to fail. The mistake of leaving all animals too long on the grass before removing them to their winter quarters is too frequently made, and is the cause of great loss both of money and time, it being a considerable period before they regain their previous condition. The mistake is mostly made from the desire to economize the winter store of food by not beginning on it too early—an excellent motive, but no cause for any dread of the early exhaustion of the winter store should ever exist, at least under ordinary circumstances. Either a sufficient supply of winter food should be grown or the stock reduced at the beginning of winter to such a number

as there is a reasonable prospect of being able to feed, as one well-nourished animal will leave more profit for the winter's keep than three which have been pinched, it being quite problematical whether *they* will leave even any profit at all. With regard to shelter and accommodation during winter, the straw-yard is undoubtedly the best mode of keeping them in health, as the sheds that surround it afford ample protection from inclement weather, and, being loose and having considerable space to walk about, sufficient exercise is taken to preserve young stock in a growing state. Keeping cattle in warm houses at night, and turning them out during the day on the pastures through all the months of winter, is a practice one would think quite inconsistent with the teachings of reason and common-sense, and certainly quite incompatible with successful and profitable management. It is a system however which is very much acted on, and, notwithstanding improved modes of management becoming better known, seems, whatever the reason, by no means to be on the decline. Every farm-yard should be provided with a large straw-court, shedded, and constantly supplied with water; the expense of putting it up is well repaid by the increased amount of manure made, the improvement on the pastures when not poached and eaten too bare, and lastly the increased value of the animals, without the slightest extra expenditure for food. When cattle are being tied-up for fattening, the arrangement should admit of their having plenty of room; they look better when not too crowded, they can lie in any position, and are therefore more comfortable and can be better managed in every way. It is equally important that dairy-cows should have plenty of room, as it enables the milking to be performed without danger or inconvenience, and obviates all danger of injury from the cows treading on each other when turning quickly round—a mishap which is just as likely as not to occur on a pap or portion of the udder as on any less sensitive part. Proper shelter, so that they are protected from the chilling rains and cutting blasts of winter, a regular supply of pure water, good and sufficient litter, and an abundance of wholesome food, not only keep the cattle in a continual state of progression, but ward off all those diseases which are the result of chills or sudden changes from scarcity of food to great plenty. Losses from these causes are excessively grievous, and can seldom be prevented by medicine, as the poor animals are usually so far gone when first noticed that before any evacuant within reach of the farmer has time to act on the peculiarly complicated system of stomachs possessed by the ruminants the vital spark has fled. Selling the most valuable animals each year for the sake of the slightly-increased amount of receipts, is a prolific source of injury, and keeps many a herd of cattle at a point almost below mediocrity, that would under happier auspices be a credit to its owner and much more profitable. We do not, of course, allude to wealthy stock-owners, who never sell from necessity; but to those who, living solely on the profits of their farms, are compelled by the inexorable force of circumstances to act in the way that will realize most money for the time being, without being in a position to consult their own wishes in the matter. If at all possible, a few of the choice young heifers should be held over each year as breeders, so that there may be no danger of retrogression in the character and quality of the stock.

J. S.

## THE OLD PLANS OF IRRIGATION.

At one time the irrigation or watering of land was more common than it is at the present day; and on hilly lands having a command of water the practice was more general than in comparatively level champaign districts. The rule was almost universal that where there was a command of water and means for application it was applied on the land. Towards the middle and close of the last century, when farms began to be regularly cropped under the alternate system of husbandry, as it is sometimes technically termed, the practice was greatly curtailed, and in many instances wholly given up. It was applied not only to land permanently lying in grass,

but also to arable lands when in grass. In those simple times arable lands were cropped on the out-field and in-field system, and it was to the out-field that the water was applied. The in-field lands were kept under a continuous course of cropping, and to them all the manure made on the farm was applied. The out-field lands were cropped so long as they would yield anything that would pay the harvesting; and when they would yield corn no longer, the grasses having got the mastery, it was then allowed to lie in grass; and it was when thus laid out that the water was applied to restore the worn-out soil to renewed fertility. Not long before the father of the writer entered upon

farming (1806), about half the lands under the plough were out-field, and thus cropped. And when serving his apprenticeship the writer himself assisted in filling up some of the water-courses, so as to bring the land they occupied under the plough.

Such being the old practice, it forms a prominent topic in works on agriculture, published at the time. It is noticed in most of the country reports to the Board of Agriculture; and in his surveys and work on "Landed Property," Marshall gives a detailed account of it.

In the latter work, Marshall gives illustrated directions for watering land, on the following four plans, viz. :—

- "1. Covering low flat lands with stagnant or slowly-moving water.
- "2. Raising flat lands into ridges, and overflowing them with running water.
- "3. Spreading running water over naturally uneven surfaces, and
- "4. Watering sloping grounds that have been raised into ridges by cultivation."

(1). In the first of these plans a dam or sluice was placed in the river, so as to raise the water sufficiently high to flood the meadow lands adjoining. In such cases the nature of the details depended much upon the inclination and character of the land. Thus, the lands immediately adjoining rivers are often higher than those more remote, so that by an underground pipe or conduit, the latter would be more easily watered than the former. Floodgates were placed upon these underground pipes, so that they could be opened and shut at pleasure as the work or state of the grass required. Again, underground drains were often required to draw off the water, so as to prevent too great a depth when stagnant, and to dry the ground when the water was turned off the main altogether. In other examples, the application of the water and its removal from the land was in each case effected by open water-courses. But the more common plan was partly by underground and partly by surface conveyance of water to and from the land.

But, besides watercourses for conveying the water to the land, the land itself generally required less or more levelling before the water could be spread over it, according to this plan; and to effect an even distribution, it was often necessary to plot out the ground into a series of levels, or rather gentle inclinations, in size according to the undulations of the surface, not unlike laying out ground for rice-beds. In many cases this subdivision of the land was surrounded with no little difficulty; for, unless the levels were mostly formed by the hand of Nature, the equal distribution of the water on the lands was more easily effected by the second method of application noticed by Marshall—viz., ridges.

(2). The soil dug out of the feeders and drains was not unfrequently found sufficient to form comparatively level land into ridges; so that this plan of spreading the water was less expensive than is perhaps generally imagined. Thus, when the land was previously under aration, it was gathered up by the plough into ridges of from 30 to 60 feet in breadth. An open cut was then dug down the middle or crown, for the feeder, and which, from its being nearly level, was not unlike a canal when overflowing its banks. The open furrow between was formed into a drain, and the ridges levelled, or rather carried into the proper slope by levelling machines, and harrowing and finishing off by manual labour. When in grass the grassy sod dug out of the middle of the ridges was placed upon the edge, so as to raise the surface several inches higher than before in the middle of the ridge. The grassy sod from the drain was placed beside this, and the loose earth dug out from both spread over the surface so as to give it the proper inclination. In many cases this was all that was required to prepare the land for the water; for, owing to its being comparatively level, the feeder when full overflowed like a canal, spreading the water equally over the sides of the ridges, and as the sides of the ridges were lowest at the edge of the drain, there would be a gently-continued imperceptible flow from the feeder to the drain. Through hollows a foot and even two feet below the natural level, the water in the feeders was sometimes carried by small embankments, sometimes in aqueducts over the drains, where such were carried down these hollows to the end or side ditches, and so on. But raised aqueducts and embank-

ments were avoided as much as possible, under-ground pipes being preferred for conveying the water from the level on one side of a hollow to the same level on the opposite side, such being out of the way of the feet of cattle, &c.

In examples of this kind the cardinal rule was to avoid stagnant water anywhere on the side of the ridges. The nearer to equality of inclination and uniformity of flow from the feeders downwards to the drain the better, as this produced an equal fertilising effect upon the land. But an equal inclination could not always be made; indeed, it was but seldom made; hence the other maxim of an equal quantity of water to an equal area of land or length of ridge in equal times.

(3). The third method, viz., spreading running water equally over the surface of a meadow without ridges, had the same object in view as the second, the surface of the meadow being undulated or uneven. The general practice of carrying out this plan involved a considerable amount of underground work in the conveyance of water to the higher levels, where it was thrown upon the meadow, and allowed to spread around over the greatest possible area of land by gravitation. To effect this, and avoid rapid currents, small wooden troughs lying on the surface were used. And to avoid expense this gave rise to the finishing of one part of a field at a time, the wooden troughs being then removed to another part. In this way an old man or boy went over a larger area of ground in a given time than those unacquainted with the practice were apt to calculate. Another plan of distributing the water over unlevel surfaces was by crooked feeders, winding round about the grounds on levels, subsidiary feeders branching off from these, on what was termed, in some places, the "fish-bone system." This plan as illustrated in agricultural books is generally too formal, the meandering of the feeders having too great a sameness of curvature to each other. Whereas, in the meadow, although the branches have a close fish-bone similarity, the diversity in the direction of the principal feeders was greater than is represented in the old works just referred to.

(4). The fourth system noticed by Marshall, of watering sloping ground that had been raised into ridges by cultivation, was perhaps the more common. In ploughing, the land was gathered up into broad, high-crowned ridges, and carefully kept in this form. The ridges thus formed and kept were often very crooked, the surface of the ground imperatively demanding it; and they were not always of uniform breadth, being narrow in some parts and broad in others. When in grass and about to be watered, a plough-furrow was opened down the crown of each ridge, into which the water was then thrown from the main water-course at the headlands. The sod turned out by the plough was cut into short lengths, and used for making dams and directing the water over the sides of the ridges, and the surplus from one dam to the next below, until the whole was utilized. The greater the inclination of the land the greater the number of dams required and the less the distance between them, the object of the dams being not only to turn a portion of the water over the ridge, but also to prevent the remainder from forming a rapid current, and thus washing away the soil. When the ridges were of considerable length and breadth, it required a corresponding volume of water to be turned down each ridge, and no little skill was requisite to spread it equally over the whole, from the upper to the lower end. With a plentiful supply of water a number of ridges could be watered together; but when the supply was limited, only two or three, and sometimes not more than one ridge at a time. The ridges on the farm already referred to, first occupied by the writer's father (1806), were about half-a-chain in width and from ten to twelve chains in length, so that each ridge contained upwards of half-an-acre; and to this day the water-courses and form of the broad crooked ridges may be traced on the outfield lands thus watered.

The water-courses in some porous gravelly and sandy soils had to be puddled in the bottom and sides with clay, or with a mixture of clay and peat, to prevent the water sinking and flowing off through the subsoil. In the course of time such soils filled up with vegetable matter, and sometimes with clay and silt, purposely mixed in the water, thus filling them up and changing their texture from gravel and sand to loams.

X. Y. Z.



## THE NEW FARM.

"Painless dentistry," did you say the advertisement was? Why, then, now, that's just exactly what I wanted last Christmas, and expect to want about Midsummer-day. Now, is there no one of the many existent good-natured fellows who will not, as poor inimitable Wright used to say, "come for to go for to send for to fetch for to bring for to carry" one of these said clever artists to sustain me under the operation of "draw" to which I shall shortly be subjected. I should be so thankful if it could be done. How thankful I cannot say.

Having touched upon the subject, let me go farther and counsel, I trust without offence, enthusiastic youth. I am spirited thereto by a recent encounter, from which I have emerged I consider not only scathless, but triumphant, with an unconscionable tradesman who had the audacity to try upon me a trick which I can attribute only to what they must have judged a juvenile guilelessness of countenance.

Don't you, my lad, if you go into a swell London shop (whether to fit out your bridal, or in any such bashful mood), on giving an order, content yourself with simply entering in your pocket-book the price stated by the airy and self-satisfied individual who shall accompany you through the show-rooms, giving the prices so fluently after rapid calculation with pen from behind his sapient ear. Get the particulars written out of each article that you order, the price it shall be for cash upon delivery, and the time of its certain delivery. To that document get your fashionable attendant's signature appended, "Catchem and Co., per Oily Wideawake," or else the chances are that upon receipt of the goods you will receive also an exceedingly spiced invoice, far hotter than you intended, and which shall curtail you of some reasonable comforts for months to come; while if you go open-mouthed to your solicitor, and mean to blow them up bodily, you will find that there is no *locus standi*. They will shield themselves under the simple reply, "We gave only a proximate estimate." So you, my dear, will be beautifully done. *Experto crede!*

I am more urgent upon this point, as there is a noble trustfulness about the mind of youth, which is most admirable and highly romantic, but simply doesn't pay. For many a year how have not we old fellows been prone to half-apologize if we had dared to ask whether "discount were allowed;" "if such be the cash price;" "whether it were of the material," and so on. And it is with something of an angry rebound of feeling that one triumphantly demands now from the most self-possessed shopman "the best material for the lowest figure; and be quick, please, for I'm in a hurry."

No more of the diffidence with which we took our orders as to breakfast, &c., from the college scout, and allowed his intervention with the awful University tradesmen. No more of that: "no, no, not for Joe—not for Joseph, oh! dear, no!" Eh! the smiling of the counter-skipper now, and the bowing, and the desire to serve, and the hope that you'll recommend us, sir," which, to the vain mind, are of value equal to a redoubled discount.

Smart's the word. Knock the wind out of them first blow—apologizing, of course, for the *contretemps*; but the effects produced, and the courteous apology, effectually salves.

Water-wolves—water-wolves are we not all? preying upon each other, rather than "jolly dogs," as one fain might wish, and as we were wont once to believe, over

devil'd kidneys and a damper, "in the days that we were young, a long time ago."

D'ye see that, young friend; for if ye don't, and have to wait for the spectacles of personal experience, why, then, more's the pity, and our Cassandra self hath sung in vain.

But to return homewards. I was constrained just now to steep my hands, feverish from rowing, in a basin of water half-boiling. I had been musing of Shorthorns, and the sweet, darling heifer-calves that have been dropping upon our pastures of late, when, drop! down came a huge spider from his swing, which I had not noticed above me. Poor thing! how he was doubled up at once! Didn't like hot water at all. Must have been married. It was so like what one is obliged so often to do oneself, under influence of the conjugal (tin) kettle.

There hath been a multitude of the spider-tribe about the house lately. They are said to follow in the wake of the black beetles, a huge horde of which has overrun us again lately. The beetle must afford rich feeding; for these spiders are a monstrous sort. We have found that strewing the leaves of the elder-tree upon the kitchen-floor causes somehow a diminution of the beetle class. Whether they find the vegetable poisonous or not, I don't know. A confectioner counselled the recipe.

We are plagued by another insect invasion. The evening air hisses with the flight of myriad cockchafers. Herein, however, our old friends the rooks (to whom we have been staunch, under the remonstrance of prejudiced agricultural neighbours) have done us an exceeding service. I could not imagine, yesterday morning, whatever was the matter with the birds. They were in and out among the apple-trees and beeches, clumsily alighting, and staggering along the weak twigs, managing to maintain their equilibrium only by a half-flutter, with their wings up, and swaying after the example of Blondin's pole.

"Them be after the blight, them be," remarked fat Melon, the gardener, as he came up to my window, triumphantly exhibiting a grand Gloire de Dijon rose: "Beaut he a beauty, sir?"

"Call him the 'Second of May,' Melon, if you want a name for it."

"Why, sir?"

"Why, because it reminds me of some one whom I saw on that day with his shirt-collar petals all turned down, and a yellowish tinge about the gills."

Poor Melon, who likes a dance about the May-pole, and a suck at the cider-cask afterwards, hereupon retired in consternation.

"Them be after the blight, sir." And, sure enough, they were in good earnest. I at once had the craws of sundry rooklings (of which a tart was being made for the kitchen) cut open, and found therein a thick débris of the comminuted, half-digested pest, a few of their shiny brown armour-plates being yet unsmashed, which I exhibited in exaggerated stature, by help of the microscope, to our horrified cook.

Bless her heart! she is a good, clean, simple-minded thing. But the mention of her name reminds me. She of late has heard a ghost! In the stillness of the night, a knocking at the door! Too frightened to move, she has simply ducked under the blankets, instead of advancing, as we consider she should have done, interrogating, "Who's dat knocking at the door?" (Aside:

"Dat you, Sambo?" to be omitted.) Well, of course, this is no joke in a country-house. The place soon got the reputation of being haunted; and then there's no getting servants at all. Well, it so happened that, one night, ourself had got deeply interested in a hideous novel—one of the "Fine Young English Gentleman" sort, that are as keenly rapid in their attractiveness ("sensational effect," it is termed) as a red-herring drag, but which no one ever looks at a second time, for the pleasure of restudying a pet passage of eloquent and truthful worth (as one does with the Waverley lot), and which are only so much "rot," to use an expressive vulgar term, when the literary merits of England come to be registered—when, about the witching hour of midnight, we heard a mysterious "Tap, tap! rap! tap, tap!" It made our blood run cold, we confess; but we were brave enough to explore, and we found—what, I wonder? Well, I'd have told you, friend.

Heresy and insubordination in the camp! "You must indeed tell us when the calf is going to be killed, poor dear little thing. It is so tame and so pretty," with an air of coy indignation our eldest born little girl remonstrated, sitting up in her cot, as I went to give her the regular good-night kiss. "Such a sweet," coaxingly added another little puss, also leaning out from behind her curtain with a remonstrativeness of pouted lip that was pretty to behold. "I declare I won't touch veal for ever so long," said her sister in chorus. This was all in reference to a fawn-tinted gazelle-eyed Alderney calf that was unfortunately born of the masculine gender, and had consequently to make way for cream and butter. As if they hadn't quite enough of pets already! enough forsooth to ruin any farmer. There's the old faithful canter-on-three-legs Breadalbane terrier, with three fat long-tailed puppies in her wake, as slow-paced as herself. There are no end of bantams, although ultimately I had to send all the poultry from the stable premises to the bailiff's wife at the farm, as the poor hens prone to incubation had been frequently left to their fruitless sitting without ever an egg under them, until it was difficult to say which were the barest, their hapless bosom or the board that served them in lieu of nest. Talk of the discomfort and attaching agonies of a seat in Parliament; they are for not a moment to be compared to the occasional sufferings of a brooding fowl in a child's hen-house! Then on the list of pets come cats and kittens in hopeless measure. Woe betide either them or the young pheasants are long! A curious incident happened to this special nursery puss last week. She had had left to her one prettily-marked bantling out of the lot born and duly consigned to a watery grave, and of this she was especially proud. Well, one day it was missing, and the poor mother was miserable. The children declared that she had forgotten where she had deposited it. This seemed an extraordinary theory, considering the might of instinct. Anyhow she followed them everywhere in their search about the rooms of the house, the out-buildings, and even through the shrubberies and woodland walks, all to no purpose, mewing piteously the while—whether a note of lamentation, or gratitude, or entreaty, it is impossible to say. At last they appropriated a kitten from a cat at the farm, which with much ceremony they delivered to the nursery puss. She at once took to it, while the robbery or transference was treated with the utmost indifference by the bcolic puss, who trotted about or watched in the stable and cowsheds for her prey just as unconcernedly as if she felt that all had been done for the best, and that her offspring had been fortunate in its promotion to an upper circle.

Well, one morning, about light, some days after the kitten's disappearance, I was awoke by a sad cry, as if of an animal in pain, which seemed at one time quite near,

at another quite far off. It occurred to me that it might be that old Melon had managed to ensnare a rabbit, of whose inroads he has been complaining lately, and that it was from this unhappy animal that the wailing proceeded. I looked out of the window, but failed to detect the victim's whereabouts. Then the agonized cry drew nearer, until at last it was beside my pillow. I sprang up, and in a closet behind a chest there was the wretched missing kitten, crawling and shrieking as if mad with pain. It must have been there for some days the housemaid declares, and that without making the least sound of any sort. How to account for the circumstance is beyond me, unless possibly it had been in a trance. Anyhow, so it occurred. The nursery puss was delighted to receive her own again from the children, with sundry scoldings to boot, while the farm cat took ungraciously the return of her infant, which our fry decided it was only just to restore.

Rooklings, tom-tits, sparrows, and such like, they have had in quantities, and destroyed by excess of kindness, too, feeding them by force ever so often in the day. Lastly, they have some blackfaced mountain ewe-lambs within a wired enclosure. This last sort doesn't pay on my side. It's all very well for the young ladies to have a snowy pet, with broad blue ribbon around its neck, nibbling parsley out of their hands, and bleating gratefully at their approach. But when these said lambs grow to be big sheep, and in their turn have lambs too, then it comes to be no joke, for me at least, the fond feeder of the lot ovine and human, for it just happens that their pet lambs of the year before last have this year lambs of their own, which are now worth, the chicks hear from the bailiff, some fifteen shillings a-piece. For this sum they have deliberately sued me. Now if this goes on it must ultimately be a serious affair. "What about their keep, my pet?" I appeal in vain. "Oh! you know, papa, they can't eat much," &c., &c. But the subject depresses.

To change the subject: In the river bed below the farm, there is lodged a huge boulder, some five yards square, which when under water is, as the Irishman said, a sign to the traveller that he must not attempt that ford. It is a splendid balcony this hot weather, whereon one can lie wandering in dream-land, soothed, too, as Mæcenas, by the murmur of the flowing stream.

The other day we saw a splash from the shore; so getting into the boat, we ascended the rock upon the upper side, and creeping quietly to the edge, on looking over we saw beneath us a glorious salmon of about ten pounds weight, resting on its oars, upon the look out for spoil. Dash! flop! and having secured the prey, with a quick, brief, curve in the flashing water, he was returning to his post when his quick eye marked us, and with a glance of light through the wave he was gone!

What a blessed gift is Sabbath repose! For the fashionable idler it is an idea difficult to realize; rather, in fact, ennuye, tired, tiresome, he wanders from club to club, acquaintance to acquaintance, to the stables, to dinner, to early bed. The right welcome bright enjoyment it really is, fully to appreciate, take a mastership in a school for six months. Teach boys from half-past six a.m. to ten p.m., with rare intervals, when the small deer have their play, and are really more troublesome than while under lesson drill, owing to the scrapes they will get into, their noise, their pugnaciousness, their dirt-pie delight. Eh! what it was then, to sleep the extra two sweet hours undisturbed by that dreadful bell! But why particularly I dilate upon Sabbath repose here is that one enjoys it so thoroughly of a summer evening at one particular corner of the sloping lawn, just where it joins on to a wild piece of the hill. All nature seems to appreciate the difference in the day. The whole air is so still and warm, and the tints upon the western sky are so delicious.

The swallows skim fearlessly and frequent in the upper-cloud region. A bright brown hawk slips idly across. Abundant turtle-doves croon amidst the elm-trees. The wild pigeons are cooing through the wood. The incessant rooks are so busy on their tree-tops. An occasional pheasant steps gallantly out from the covert shelter, occasionally escorting a timid hen who has been up to feed, and seems fearful of returning alone; while a brace of partridges advance, pecking up to the very verge of our feet, where we lie unseen, young and old holding our very breath, lest we should disturb the elements of our enjoyment.

We have had a good deal of trouble with the shorthorns of late. "Well! and what is it has happened to your fascinating stock?" some may ask. Why, in the first place the grand cavalier the monarch Butterfly having managed by dint of his great weight and his being tied up to establish a housemaid's knee, it was judged expedient to remove him into a loose box. As it happened, fortunately, the place selected was the bay of a disused barn, where he was strongly walled in on every side, excepting the door, which he makes to creak and shake every time he touches it with neck or flank. Precautions had been taken in the fitting of it, that he should not be able to introduce his horn anywhere. As his temper is not of the best, and his eyeballs glare out exactly like those of his grandsire the Towneley Frederic, I judged it expedient to attach a cord to the ring in his nose, to run over a small wheel on the beam above, being weighted at the end, so as to allow of his advancing and retiring at pleasure to and from his

manger. This was a large stone trough laid upon a bed of masonry. The very moment he found himself at liberty he worked his horns beneath the trough, and threw it high in air with inconceivable strength and savage temper. Down it came again, and right upon the cord, pinning his nose to the ground; whereupon he blared and roared so fearfully that his attendant, in a fright, managed to cut him loose and get out again in time to avoid his resentment. Here, then, was a pretty kettle of fish! For the time, he went positively mad. It was frightful to behold his fury as he wreaked it upon everything within reach. Fortunately there was little besides his bedding and his victuals attainable. He had to be watched continuously, for fear he might manage to overthrow the door; but in a day or two he grew calmer, as he got more used to his lodgings; and, stealing his opportunity, the herd-boy, having left the door so far open as to allow of his hasty retreat in case of need, managed to pounce upon the animal's tail, to which he clung vigorously, until the beast, having exhausted himself in the vain endeavour to get free, took a look round of curious inspection; whereupon the lad hooked him cleverly with his rod, and the bovine brute was at man's mercy again. He became mild enough on being tied, and I trust now will not have to be done for with a bullet, as I once was afraid. What other events in the herd have occurred I must leave until next time.

I forgot to mention that the ghost turned out to be, as you may have guessed, simply a death-watch beetle.

VIGIL.

## AGRICULTURE OF FRANCE.

A couple of years ago there went up such a cry from the French agriculturists that the Government felt it incumbent to appoint commissions of enquiry. The country was divided into thirty zones, and each zone was subjected to the examination of a different commission. The enquiry has terminated, and an immense mass of evidence has been sent to the Minister of Agriculture. Several volumes have already been published, and the information furnished by these printed reports is quite sufficient to show the causes of suffering. These are want of labour, want of capital, want of communication, want of instruction, and the taxes levied on the transfer of property. To this list may be added the sub-division of land; but most of the commissions, though they point out evils attendant on this system, consider it favourable to production. The second question put by the Minister of Agriculture runs thus:—During the last thirty years what influence has been exercised on the conditions of production by the division of property? The commission for the department of the Manche says the result has been to augment production, but in reply to other questions the same commission points out that the small proprietors have not sufficient capital to improve their farms; that the excessive division of property is an obstacle to the employment of machinery, and again that the principal objection to the division of property is that it renders drainage impossible. The Calvados commission also replies to question two, that the division of property has augmented production, but deplors the want of capital. In Eure, sub-division has been found prejudicial to production, and the commission condemns the practice of dividing the land amongst the heirs on the death of the head of the family. M. Genteur, president of the 11th zone, gives much valuable information in his report. He says that since 1789 the division of land has constantly progressed, and that, confined within reasonable limits, this system presents two advantages—1st. It is useful as regards the development of production; 2nd, in encouraging the labouring classes to buy property it "moralises" them, interests them in the maintenance of social order, inspires them with conservative sentiments, and keeps them from the temptations and seductions of the town. On the contrary, when

exaggerated it gives rise to serious inconvenience, and the Legislature should prevent it being carried to excess. According to the Code Napoleon, the father, when dividing his goods amongst his children, is obliged to give each an equal share of all the objects composing his fortune. The opinion of the agricultural world is that this law produces an excessive division of landed property, and that it would be better for the father to share his goods amongst his children according to their tastes and professions. Another commission reports that "the extreme division of property is one of the principal causes which prevents the use of agricultural machines." And again, when alluding to drainage, "the parcelling out of the land prevents the farmers carrying away the water." The Commissioners admit that the system of division should end somewhere, but it would be a terrible blow to the ideas of 1789 to re-establish the laws of primogeniture even as regards land, and no one would be bold enough to propose such a measure. M. Genteur does go so far as to recommend that the head of the family should be allowed to give his land to one child and his funded property to another; but any bill introduced into the Corps Legislatif tending to such a consummation would be vigorously opposed.

Another cause of agricultural suffering is the want of labour felt all through the country; this is attributed to the army, the development given to various industrial undertakings, and the immense public works being carried on in Paris and other large towns. Everywhere statistics show that the rural population is on the decrease, and that the deaths exceed the births; the peasant prefers the town because the labour is generally lighter, more continuous, and better paid; in fact, one can easily imagine the attraction for a Breton, who gets at most half a franc a day, of ten times that amount to be earned in Paris under Prefect Haussmann. That deaths should nearly everywhere in the country exceed births does not alone depend upon emigration. If we turn to another report, we find that immorality has much to do with the matter, and that there is a general hankering after luxury:—

"The good old manners are disappearing day by day, and rustic simplicity is no longer in vogue; luxury and the love of

pleasure have invaded the most remote parishes. The number of natural children increases, the number of legitimate ones diminishes. The peasant of to-day is determined not to have children. To counteract this tendency it is demanded that the Government should encourage large families by relieving them from taxation. I am obliged to state that religion is on the wane. The priests are worthy of all respect, but they have lost their influence, and, to believe the testimony of many persons, this state of things has been produced in consequence of the clergy preaching dogma rather than morality, and not adhering to those principles upon which modern society reposes.

Want of capital is another malady which afflicts agriculture. The fever of speculation has spread through the whole country, and the money which used to be laid out in the improvement of land is now invested in railway shares and loans, or squandered on the Bourse. On the other hand, the farmer who desires to get money can only do so by paying an exorbitant

interest, for very few proprietors can fulfil the conditions upon which alone the *Crédit Foncier* and *Crédit Agricole* will make advances. The country people also complain of the large amount of stamp duty which they have to pay, and where there are so many forced sales, and where so many persons are left land which they cannot keep, this species of taxation is especially onerous.

What most of the commissioners demand is that the conscripts not belonging to the active army shall only be called out for drill when there is no agricultural work to do; that there shall be fewer fairs and market days, where much time is wasted; that the stamp duties shall be lowered; that the farmer shall be afforded facilities for getting money; that agricultural instruction shall be given; that some means shall be adopted to prevent the constant emigration to large towns and some modification introduced into the present law affecting the right of disposing of property by will.—*Pall Mall Gazette*.

## THE EXHAUSTION OF THE SOIL, AND THE RENEWAL OF ITS FERTILITY.

The following paper was read by Mr. J. J. MEECH, at a meeting of the Midland Counties Farmers' Club, at Birmingham, on Thursday last, June 4. Twenty-one years ago, I came on a visit to that eminent man, your near neighbour, the late Sir Robert Peel, who was himself, even then, a great agricultural improver, and deeply impressed with the necessity for amending our agricultural ways. My speech on that occasion is recorded in my book. I well remember the celebrated "Tanworth bull" being led out for our inspection, and I have no doubt that he has left reminiscences profitable to the neighbourhood. By your invitation to me to come here to-day I take it for granted that, as agriculturists, you are dissatisfied with things as they are, and are resolved upon further progress. I have great faith in your determination in this respect, for I cannot forget the very recent beginning of your now great Birmingham Show, and how rapid and successful has been its development. This, alone, convinces me that there must be among you some bright agricultural spirits. I remember dining at its inaugural meeting and subscribing to its funds. But while your busy Birmingham hive can supply Britain and the world abundantly with its wares, you fail to meet the food requirements of your neighbourhood. Why is it that we cannot produce our own food in sufficient quantity? I have proved by my own farm, and by my uncontradicted statements, that we can more than do this, by the investment of greater intelligence and capital. But to do this we must add science to art, and learn to believe in science as our profitable helpmate. That has been for 28 years the opinion of the Royal Agricultural Society of England, for as I opened its annual volume I saw on the title-page "Practice with Science," and I accepted the motto in its full significance, because I saw on its council your talented countyman—the author of "Talpa"—and others whom I knew could fully appreciate the meaning of that motto. But is that title recognised and acted upon by the bulk of British agriculturists? I feel humiliated in being obliged to say, decidedly not. What does Baron Liebig say of this in the preface to his last great work, "The Natural Laws of Husbandry," published in 1863? "In the sixteen years which have intervened between this work and the sixth edition of my 'Chemistry applied to Agriculture and Physiology,' I have had sufficient opportunity to become acquainted with all the obstacles which are opposed to the introduction of scientific teaching into the domain of practical agriculture. Among the chief of these may be reckoned the complete separation which has always existed between science and practice." What do I often read in the British farmers' own papers, and what do I too frequently hear from farmers themselves? "None of your theory and book-farming for me: I am a practical man." But I am happy to be able to admit that the last twenty years have made some considerable inroad upon this feeling, and that there is growing, especially among the rising and better-educated generation, a gradual but still too limited tendency to believe that science may hereafter be found to lend useful aid in the cheaper and more abundant production of food for the people. Let me say for myself that

I am a book farmer; that for more than a quarter of a century I have practised by the light of science; that I have read and studied the communications of eminent chemists and agriculturists who have thought it no disgrace to put into print their discoveries and experience. What benefits have not such men conferred! Long after they shall have passed away their knowledge will remain to enlighten and advantage their fellow-creatures. I am a firm believer in the theories and principles of that great man Baron Liebig. But can we wonder that the agricultural mind has been so cramped and narrowed, when we reflect that it was only the other day, in the history of our nation, when we had no roads, or such bad ones as to be hardly available, so that the agriculturist was, as it were, locked up in his own parish, without educational resources or means of intercommunication, and, therefore, as a natural consequence, largely impressed with the self-sufficiency of isolation? But the schoolmaster is abroad now: the steam-kettle has set everything boiling, and we are preparing to advance at steam pace. The mind and body are equally, and, consequently, in rapid movement, and, if I could come again in 1868, with some of my kind, hospitable, and charitable farming friends, and then "take stock" of British agriculture, how greatly should we not be astonished, and hardly believe that we were in the good Old England of the present century! We are all slaves to circumstances, and if I find fault, it is rather with British agriculture than with the British farmer and landowner. Begging pardon for this introductory digression I proceed to the subject of my paper. There is a natural tendency in man to exhaust the soil of its very small percentage of food for plants. This desire is too obvious to be denied, and it has caused the stringent restrictions in leases forbidding the sale of hay, straw, roots, and green crops. Man has to be protected against himself, for he is his own greatest enemy, when he proceeds upon a system of exhaustion without restoration, thus producing minimum instead of maximum crops. This spirit of spoliation arises from a want of knowledge and a mistaken belief, or hope, that there is in the soil an inexhaustible store of plant food. In our colonies and in the United States of America (whose Government has still 1,500,000,000 of acres of uncropped land to dispose of, without any restrictions as to cropping) the first settler finds a soil stored with an ample supply of plant food, which he believes will last for ever, so he goes on cropping and selling everything off his land, making little or no manure, which is either thrown into a river or left unused, and when a gradual but certain exhaustion of the plant-food in the soil has proved to him that his crops are no longer remunerative, he seeks a new home in the unexhausted and unsettled far-west, taking his chance of the fever or ague, generated by rich but undrained and uncultivated swamps, or lands reeking with decomposing vegetable matter. Good farmers in Britain can hardly realize the fact that the extensive and once-fertile original settlements of America have been so exhausted by 80 years of constant cropping without manure that some districts will not grow wheat at all, while

extensive tracts produce only from 8 to 12 bushels per acre, and often less. (See recent American statistics; also Baron Liebig, "Modern Agriculture," p. 220.) The soil is like a school pudding, with a few plums in it, widely and very unequally scattered. Baron Liebig says at p. 143 of his "Modern Agriculture": "Chemical analysis has, with its rigorous methods, proved that of thousands of fields there is scarcely one which contains more than 1 per cent. of the ash constituents of plants (clover, for instance) in a state suitable to the wants of plants." Many fields contain only one-fourth to one-half per cent., some even less: Liebig points out that if this plant-food (phosphate of lime, potash, and ammonia being the principal elements) were intimately intermixed and condensed on each granule of the soil, we should get many and better crops from our present store; but the plant-food is usually not in this desirable condition, and therefore the chemist's analysis of our soil gives us no accurate knowledge of the quantity of plant-food in it in an available condition. The very finely comminuted condition of Peruvian guano causes it to be very quickly used by the fibres of plants, especially when applied with water or washed into the soil by rains. This teaches us the value of an intimate admixture and comminution of the soil. Liebig says: "A field is not exhausted for corn, clover, tobacco, or turnips so long as it yields remunerative crops without needing the replacement of those mineral constituents which have been carried away. It is exhausted from the time that the hand of man is needed to restore the failing conditions of its fertility. In this sense, most of our cultivated fields are exhausted. The soil will be termed exhausted, in the agricultural sense, when the crops cease to be remunerative—that is, do not cover the expense of rent, labour, interest of money, &c." (See Liebig, "Modern Agriculture.") I wish you would read the Baron's lucid and original explanations of many things that now puzzle and perplex the British farmer; for instance, why you can grow barley where you could not grow peas or clover; why bones, superphosphate of lime, nitrate of soda, or salt are very advantageous in some cases and useless in others. He, as it were, takes you down into the soil and shows to you the plant-food, in what condition it is, and how the rootlets feed on it. I come now to consider the means of giving or renewing fertility. Natural or artificial drainage is one of the most important bases of fertility. No one would expect a plant to thrive in a flower-pot if there was not a hole at the bottom for the escape of surplus water. So it is with the soil. The fact appears so clear and indisputable that one would suppose it to be now generally admitted. Perhaps the want of means may prevent much draining, but I know that in my county there are a great many farmers, not deficient in capital, who do not even now believe in drainage on their strong loams (non-calcareous tile earths). Twenty-odd years ago I proved that they were mistaken. We must offer our tribute of thanks in this matter of draining to the late Mr. Smith of Deanston, Mr. Josiah Parkes, and Mr. Bailey Denton. Foremost and earliest in spring draining was the late Mr. Elkington, of your county, who received £500 from Parliament in acknowledgment of the services he had rendered. I drained all my land 24 years ago, making it, as it ought to be, the first step in improvement. Every drain is perfect now. Probably if all the land requiring draining were to be drained, the cost would amount to from £40,000,000 to £100,000,000. Our best authorities agree that it would return 15 per cent. to pay for the 6 per cent. principal and interest of the operation, and it can be done now on security without outlay. There is so much iron in some parts of your county that unless the pipes be small, and the flow consequently rapid, the drains get filled with it. I remember that prevented the success of Mr. Smith, of Deanston, draining for the late Sir Robert Peel. He used the old flat sole, with a tile upon it. In consequence, the flow was wide, thin, and slow, and the ochrey iron matter had time to settle and accumulate. The 1-inch pipes put in by Mr. Josiah Parkes caused a much more rapid flow, so that the ochrey matter was carried out into the open ditches. By very deep draining I have converted a small bog into a sound, dry, profitable soil. I am sorry to see it recorded in the Society's Journal and elsewhere that on some estates it has been found necessary after drainage for the landowner to appoint regular inspectors of the ditches and mouths of outlets of the drains, which would, but for this, be choked up, owing to the neglect of the tenants. This ought to form a stringent clause in the

lease, but I rarely hear of its being inserted. I heard that when parts of Cheshire were drained, and the rushes disappeared, the farmers complained that drainage had spoiled their cheese by doing away with the rushes. The fact is, the milk was so much improved by the new grasses that sprung up that it was too fat, and the cheese would not "travel" safely, but broke into pieces. Some knowing hand remedied this, by skimming a little of the fat or cream off before making the cheese. In Suffolk they make butter first, and then cheese from the skimmed milk. This is called "Suffolk bang." There is no fear of its not travelling safely; for it has been suggested that they should be used for paving stables. It is sold at about 3d. per lb., and is eaten sometimes with the fat of salt pork, to "get it down." I could enlarge very much on the advantages arising from drainage, such as greater and earlier crops, of better quality and easier ploughing, and increased temperature of soil and subsoil; but most of you know all about it. I would not farm undrained heavy land, if offered to me free of rent. How important is tillage! After drainage, and before manure, the most important. Baron Liebig writes (at p. 108 of his "Modern Agriculture"): "As the smallest portions of (plant) food cannot of themselves leave the spot in which they are held firmly fixed by the soil, we can understand what immense influence must be exerted on its fertility by its careful mechanical division and thorough intermixture. This is the greatest of all the difficulties which the agriculturist has to overcome." This indicates the importance of first-class implements in perfect condition, instead of the imperfect, old-fashioned, and half-worn ones which we too frequently see. Tillage acts in various ways, as beautifully explained by Liebig. If we could see the half per cent. of available plant-food in the soil, we should find it widely scattered, unequally apportioned, and insufficiently diffused—more in one place, less in another; and as water cannot transpire it from one place to another, this must be done principally by cultivation. One cannot sufficiently appreciate the advantage of keeping the surface of our hard or stiff soils open and friable, thus permitting the operation of those natural laws so lucidly explained by Liebig ("Modern Agriculture," p. 49). After the crop is removed, the soil is usually tied together by root-fibres. It becomes of the highest importance that they should be well shaken out by cultivation, and thus easily decomposed by atmospheric action. I have found by practice the advantage of cross-ploughing my clover-leas before they are ploughed again for wheat. It makes a considerable difference in the crop, and gets rid of slag and wireworm. I know many who do this, although the general opinion has been for only once ploughing; but it is erroneous, at all events on such soil as mine. Try an acre or two; and you will soon arrive at a conclusion. Comparative trials on a moderate scale are very advantageous: they remove many prejudices, and increase our profits. I always cross-plough after beans. The good effects of tillage are well illustrated in a conservatory where plants or shrubs are pot-bound or tub-bound, and one wishes to avoid repotting. The pot or tub is generally found to be filled with one solid mass or network of roots, so tightly packed that water cannot enter among them. In that case I soften the surface with water, divide the surface mass of roots by cutting them to pieces, fork the surface to the depth of 3 to 6 inches—in fact fallow as deeply as I can, getting gradually deeper and deeper. The sickly plant soon revives, and makes new shoots in spite of losing one-fourth or more of its roots, many of which have, no doubt, been long since useless. While following I continue watering from time to time with Peruvian guano and water (not too strong, about one-tenth of an ounce to the gallon). The result is a vigorously growing plant, where once it was pale, sickly, in fact almost dying. I have many such instances in my conservatory of the success of such fallowing, both with flowers and large camellias, &c. Before leaving tillage, let us recognise those two great tillage lights—Jethro Tull and the lamented Rev. Samuel Smith, of Lois Weedon. Let us congratulate ourselves on the application of mighty and untiring steam to the cultivation of the soil. It may, however, be well to remember that, unlike the horses it has superseded, it makes no manure. Chemical analysis has shown that the few inches of top or cultivated soil contain most of the money in our agricultural purse, each inch from the top containing less plant food than the one above it. This is because the surface soil has the power of arresting and fixing a large quantity of plant

food, especially ammonia (some of which it gets from the atmosphere), phosphate of lime and potash. The first inch (which, by-the-by, is 100 tons per acre of earth) gets the best chance of appropriation, and then come the next and lower ones, and as plants multiply their side fibres near the surface, we may comprehend why surface manuring is often found so beneficial—at least I have so found it. Now, as the first few inches of top soil would take much more plant food than we ever give it, we can readily imagine that the poor subsoil comes badly off; in fact, we see by its appearance that although so close to the top soil it is cold, dense, pale, and unaltered, and altogether different from the friable and manured surface soil. Can we wonder, then, that the plants look well while in their early growth—rejoice in the good things of the top soil? But when their main or tap root at the later stage of its growth descends into the cold empty subsoil, ought we to be surprised at the leaves looking bilious and queer?—"going to Halstead Fair" is the saying in Essex, because the fair takes place early in May; and they also say sarcastically that such plants forget to return. By following the first plough with another (without the breast) drawn by four strong horses, we break up the subsoil, and intermix it with the upper soil; by which means it participates, with the surface soil, in the manure applied. It does not answer to bury the top soil and overlay it with the under soil. With certain soils, like mine, it would injure the crops for years. The improper physical condition of soil impedes the working of plant roots and fibres. The dense, unmoved, unmanured, and un-aerated condition of the subsoil acts injuriously on those plants, such as clovers, turnips, and other deep-rooted plants, which depend upon the subsoil for their summer food. Hence the "going off" of our corn crops in May and June, just when they require the largest amount of food; hence the dying of clover in the spring. Its roots get starved when they reach the empty, unmanured, un-aired, and unwholesome subsoil. Clovers don't fail in the rich subsoils of gardens. Whenever I have thrown back the top soil and worked manure into the subsoil, I have been amply compensated. The field feels it for years. Both top and under soil should, if possible, be manured, for the roots of most of our crops descend several feet in drained soil. I know the case of a parsnip descending 13 feet 6 inches in a loose soil. It is because the subsoil has so little plant food in it that our deep-rooted crops can only be taken at long intervals. We cannot, to any great extent, manure the subsoil through the top soil; therefore they ought to be intermixed. Before I leave the question of tillage, permit me to say that I do not agree with those who condemn Essex heavy-land farmers for frequently disturbing their land by cultivation. I am convinced practically, and especially by the scientific reasons given by Liebig, that the frequent separation and intermixing of the granules of the soil during suitable weather is beneficial, chemically and physically—assuming, of course, that the land is drained, naturally or artificially. Keeping the crops free of weeds is, I know practically, one of the best and cheapest methods of enlarging our crops. The last saving a farmer should resort to is that of hand or horse-hoeing. The neglect in this matter is painfully obvious, and robs the country of millions annually. Don't tell me of sowing thick to smother the weeds. Every half-crown paid for hoeing does, I know, bring back 7s. 6d. The cultivation is worth the money, irrespective of weeds. I always horse-hoe my wheats, beans, and peas once or twice with Garrett's horse-hoe (at about 1s. per acre), and hand-hoe twice or even three times, at a cost of about 7s. 6d. to 10s. for the hand-hoeing. Women afterwards hand-pick any weeds that have escaped the hoe. We know by the leaves of our flowers when there is anything wrong below; so it is with our field crops, and as I came here by rail certain bilious-looking crops indicated an uncomfortable state of their roots, owing to want of drainage or food in the subsoil, or in consequence of weedy competition. If selling off the crops from the farm causes exhaustion, bringing them (or their elements) back again is the true and obvious way of restoring fertility. The difficulty of doing this by town sewage is by no means great, as I know by twenty years of practical experience, but I calculate that it will still be many years before landlords and tenants estimate its true value, and anxiously put forward their claims for those precious streams of the life-blood of the nation that would enrich their fields and increase

their gains. Our foreign importation of eatables and drinkables is over £70,000,000 sterling: much of this, as well as of our own produce, goes down the sewers. If all were applied to our soil it would greatly increase its fertility. Those who desire to know the effect of town sewage on every crop should read Mr. John C. Morton's recently published report of his experience at the Lodge Farm, Barking, with 300,000 tons of London sewage (published in a 2s. pamphlet, by Warne and Co., Bedford Row, London). If these facts do not open the eyes of landlords and tenants to the advantage of using and paying for town sewage, my opinion of the English character must be a wrong one. It is a disgrace to our intelligence that the use of sewage should be forced upon us mainly by sanitary rather than agricultural considerations. I must congratulate your county that the town of Leamington should have assembled a Sewage Congress, due, mainly, to the indefatigable and praiseworthy exertions of one individual. I am glad to find that Birmingham is at length taking steps to utilise its sewage. This is also being done by many lunatic asylums, unions, prisons, reformatories, and public charities. It does seem like a national absurdity to pay millions for birds' dung from Peru, and yet waste our own at home. But let us deal with the time and circumstances present. Let us admit that we waste our sewage, and that we are not yet sufficiently educated (agriculturally) to comprehend the physical and chemical conditions of our soil and its requirements. Let us confess that we don't believe enough in the agricultural chemist. I am now going to tell you of what I call a golden maxim for fertilizing our exhausted soils. Let your live stock consume, in proportion to each acre of your land, a large quantity of cattle food that was not produced on your own farm. Make, as it were, a farmyard or foldyard of your land, taking care that every particle of the manure, solid or liquid, shall go on to or into the soil. It is of little use to raise food on one side of the farm to be consumed on the other. That adds no mineral element to the soil: it is like "robbing Peter to pay Paul," or taking money out of the right-hand pocket to put in the left-hand one—the stock of money is not increased. All our most successful farmers use plenty of cake, that was not produced on their own farms, but is the produce of foreign countries. Import cattle food instead of man's food. I know some first-rate farmers who invariably consume £3 worth of cake per acre per annum over the whole farm. Such people have always plenty of corn to sell. These remarks apply equally to grass lands. Take foul and exhausted grass land, fold it closely with fattening sheep (not store animals), consuming plenty of cake, beans, malt combs, bran, roots, and hay, and its poverty will suddenly disappear. Half the kingdom is in grass land, and most of it is robbed and starved. That is a great arithmetical mistake—I mean subtraction instead of addition. I give this golden maxim as a practical farmer of 25 years; but if it is disbelieved or doubted, try an acre on each field. On this acre consume £8 worth of produce (cake preferred) that did not grow on your farm, and then keep an account of its produce for the next four years, and it will effect a most satisfactory change, both in your mind and pocket. Remember that, when by draining and high farming you have destroyed the sour worthless grasses, you must re-sow with good grasses and clovers adapted to the altered and improved condition of your soil. We are far too sparing as to sowing new grass seeds and clovers on our pastures from time to time. Having for 20 years used from £600 to £1,500 worth of purchased food, as well as each year some guano, &c., I am enabled to give you a practical opinion in favour of purchased food; and we have also in its favour Liebig, Way, Voelcker, and Lawes, so that we must give a decided verdict against artificial manures. Except on the score of want of capital, or for its portability, it is decidedly disadvantageous as compared with the sheep-fold or under-cover-made manure, all of the animals of course being highly fed on a variety of rich food. With poor lean-stock-made manure, guano and artificials show to greater advantage, and they are always useful as auxiliaries when we are short of the best cattle manure, which we rarely have in sufficient quantity. In certain exceptional cases, such as Cheshire—where the one element wanting was bone earth, bones—or superphosphate of lime, have been found of immense advantage. Artificial manures, and even guano, are deficient in some of the necessary plant food; therefore it has been found, on some light lands particularly, that the land gets tired of guano, and that it

has had an exhausting effect. Guano is certainly nearly 50 per cent. too dear in comparison with the best shed-manure, and its price regulates that of other artificials. The building up of a plant is like the building up of a house—we must first know what materials are required, and then take care that they are all provided in a suitable condition and proper proportion. The want of any one of them would render all the rest useless, although they were present in superabundance. Given, in the case of house-building, slates, bricks, lime, sand, boards, nails, and labour; still they would all be useless by the omission of water, or any one of the other materials. This is the great plant-lesson enforced and explained by that great philosopher Baron Liebig, whose works will, in 1868, be found in the library of every intelligent farmer. A ton of Peruvian guano costs £13; and taking this as a standard, Mr. Lawes has given in the following table the value of the manure produced from the consumption of a ton of various kinds of food. This may be said to settle the question against artificials; but then farmers must treat their manure as they do their guano—keep it free from rain-water. No farmer would think of scattering his guano over his farm-yard and allow the rains to wash much of it away; but it is equally wrong so to treat his home-made guano. He should always leave half-an-acre unmanured, or try artificial manures on a small space, so as to form a correct comparative opinion as to their value. This is too seldom done. We ought also more frequently to submit our cake and artificials to the agricultural chemist, whose large experience would, for a very moderate consideration, spare an immense amount of victimizing. This is one very obvious way in which science will benefit agriculture.

*Mr. Lawes' Table, showing the estimated value of the manure obtained from the consumption of one ton of different articles of food, each supposed to be of good quality of its kind:—*

Description of Food.	Present market price (about).	Estimated money value of manure from 1 ton of each kind of food.
1 Decorticated cotton-seed cake	£ s. d. 11 10 0	£ s. d. 6 10 0
2 Not decorticated	7 0 0	—
3 Rape-cake	7 0 0	4 18 0
4 Linseed-cake	11 0 0	4 12 0
5 Malt-dust	6 0 0	4 5 0
6 Bran	5 10 0	—
7 Lentils	—	3 17 0
8 Linseed	—	3 13 0
9 Tares	—	3 13 6
10 Beans	11 0 0	3 13 6
11 Peas	11 0 0	3 2 6
12 Locust beans	—	1 2 6
13 Oats	9 10 0	1 14 6
14 Wheat	17 10 0	1 13 0
15 Indian corn	9 0 0	1 11 6
16 Malt	—	1 11 6
17 Barley	11 0 0	1 9 6
18 Clover hay	4 10 0	2 5 0
19 Meadow hay	3 5 0	1 10 0
20 Oat straw	—	0 13 6
21 Wheat straw	2 0 0	0 12 6
22 Barley straw	1 10 0	0 10 6
23 Potatoes	6 0 0	0 7 0
24 Mangolds	1 0 0	0 5 0
25 Swedish turnips	1 0 0	0 4 3
26 Common turnips	0 12 0	0 4 0
27 Carrots	1 10 0	0 4 0
28 Fresh cut meadow grass	—	—
29 Ditto Italian rye-grass	0 17 0	—
One ton of meat (best quality) sells for 73d. per lb., or 5s. per stone of 8lbs.—say that it takes 8lbs. of corn or cake to make 1lb. of meat.		
1 ton of meat	...	£70 0 0
8 tons of rape-cake, at £6 10s.	£53 0 0	...
Cost of carting, breaking, feeding out, 6s. per ton	...	2 8 0
		54 8 0
		£15 12 0
Value of manure	...	39 4 0
		£53 16 0

So here we get £53 16s. worth of guano for nothing. Verdict for the plaintiff.

Take linseed cake, 8 tons, at £11	...	£88 0 0
Feeding out, &c....	...	2 8 0
		£90 8 0
1 ton of meat	...	70 0 0
		£20 8 0
Value of manure at £4 12s. per ton	...	£36 16 0
Loss on feeding	...	20 8 0
		£16 8 0
Value of manure	...	£20 0 0
Take 8 tons of beans, at £10 per ton	...	£80 0 0
Grinding and feeding out	...	4 0 0
		£84 0 0
1 ton of meat	...	70 0 0
		£14 0 0
Value of manure from 8 tons of beans, at £3 13s. 6d.	...	£29 8 0
Less	...	14 0 0
		£15 8 0
Value of manure	...	£15 8 0

All these calculations are founded on the estimate that it takes 8lbs. of cake or beans to make 1lb. nett of meat. Some people say 7lbs. will do it. Lawes says 5lbs. to 1lb. live weight. My live-stock account of last year (which you have no doubt seen) show that my animals consumed—

Of purchased cake and linseed	...	£228 0 0
Corn (principally beans and some oats)	...	236 0 0
Malt combs	...	17 0 0
Bran	...	42 0 0
Condimental food	...	35 0 0
		£558 0 0

Also the produce of 25½ acres of grass and green and root crops. After charging to the stock all the purchased food, the cost of producing the green and root crops, and all expenses of attendance (horse and manual labour), the balance or charge against the stock, or rather for the manure, was only £158 4s. 9d. In 1865 and 1866 the balance was still more favourable, because meat was dearer and feeding-stuffs cheaper than in 1867. The manure from the purchased food alone is worth (according to Mr. Lawes' table) about £240, besides the value of all the manure arising from the consumption of 25½ acres of home-grown green and root crops, and a large quantity of straw used as food and as bedding. Altogether, we can fairly take the manurial value of the whole as £340, against a loss of £158 4s. 9d. in feeding. I know also from experience that the farm manure greatly exceeds in effect the artificial manures. But you must not expect such favourable results as I get, unless you adopt my plan of economising food by comminution and variety, by giving it warm in winter, by under-cover feeding of cattle, and folding of sheep in summer; and, not least, keeping the manure under cover, and doing all the laborious portion by steam power, which I have now used for over 20 years. My cattle never got more than half-a-bushel (30lbs.) of roots daily, pulped and mixed with much straw chaff, 12lbs. of beammeal and cake, 1lb. each of bran and malt combs, ½lb. of crushed linseed, and 1lb. of condimental food. Roots and green food should only be used as salad with richer and drier food. They are expensive to grow, and the cost of them in handling and feeding out is great. A ton of cake worth £10 will only cost half as much to prepare and give to the stock as a ton of bulky and watery roots, worth 10s. to 12s. When given in the usual large quantities, they are rather physic than food, taxing unduly the urinary organs, and keeping the bowels too relaxed, for they contain 88 to 90 per cent. of water—but we are not here to-day to discuss the feeding question. Cheese-making and milk-selling are sad exhausters of the plant-food in the soil, unless the cows are largely supplied with supplementary food; and the system of raising and selling half-starved lean stock starves the land, the landlord, and the farmer, except on very rich soils. As a rule, I say, tell me how much fat meat you make per acre, and I will tell you how much corn you grow, for corn is dependent on fat-meat manure. Lime is a good servant, but a



bad master; lime (like earth burning) tends to render available the plant-food in the soil which was before unavailable, owing to its improper physical or chemical condition. Lime adds little manure to the soil; it only cooks or prepares what there is in the soil, and gets it ready for the plant. The continuous use of lime, or rather its excessive use, without ample manuring, has in too many instances impoverished the land, the tenant, and the landlord. It appears to me that one of the most important uses of chalk and lime is to neutralise or destroy the vegetable acids in the soil. In Essex, on our stiff non-calcareous clays, we all know that where a wood or fence has been removed from our heavy soil, no satisfactory crop can be got until the land is chalked, but I never heard any explanation of this except that the earth was sweetened. No doubt the land was sour, or rather the vegetable excretions—roots—were acid. Land that grows sorrel will no longer grow it after chalking. To test the action of chalk, I scraped some into powder, and placed in a wineglass as much as would one-fourth fill it. On pouring on to it some vinegar a violent ebullition took place, boiling over the mouth of the glass. No such effect could be again produced with the same chalk and vinegar. Both alkali and acid were neutralised. The farmers say it is of no use chalking a second time—at least for 14 years. This appears to explain why it is so. I have often been found fault with for not chalking or liming sufficiently, but I do not find the need of it, because the quantity of ammonia produced by my stock feeding under cover, effected, as shown by the crop, the same purpose as the chalk. Convinced of this, I asked the opinion of an eminent chemist, and he stated that ammonia was an alkali five times more powerful than chalk. Possibly it may be that the excess of ammonia in Peruvian guano acts favourably in cold sour soils, by neutralising or destroying acidity rather than as food for plants. I presume that the ammonia which results from the folding of sheep fed on rich nitrogenous food, such as cake, beans, &c., which enrich poor heavy land pastures, neutralise the acids produced from the immense network of dead grass fibres in the soil. Baron Liebig says that irrigating grass-lands produces the same effects as careful ploughing. It is easy then to understand the favourable effects of town sewage on grass lands, especially Italian rye-grass, for such sewage superabounds in ammonia, which is considerably in excess of proportion to the other ingredients of plant food contained in the sewage. I consider salt a very important ingredient. Although scarcely a manure in itself (except for saline plants, such as mangel wurzel) it confers many benefits by dissolving and distributing the phosphates that are already in the soil. It attracts and retains moisture in light soils, and on such soils is of very great value as a top-dressing, by preventing the ravages of wireworm. I always sow six imperial bushels per acre on my light land wheat and barley before the wireworm acts—that is, before the plant appears above ground. I know some persons who use as much as 5 cwt. per acre. I sow about  $1\frac{1}{2}$  cwt. per acre on heavy land (drained), mixed with guano for wheat and oats. The ashes of mangel wurzel contain much salt. An excess of salt renders the land barren for a time. Our stiff, plastic, non-calcareous clay, almost free from vegetable matter, becomes, when burned, real brickdust, and yet it is a most valuable fertilizer. Twenty years ago I burned an immense quantity, with great advantage. Science teaches us the why and the wherefore. Here it tells us that the hitherto unavailable elements of plant food locked up in our stiff clays become liberated by the action of fire, and rendered available for the feeding of our crops. But there is another and most important advantage. The physical condition of the soil is entirely changed by burning. The bird-lime, or putty-like soil, previously almost impervious to air or water, becomes loose and friable, permitting the free circulation of plant roots, and making the land work so much easier, and leave the plough breast readily. There is no safer investment on stiff clays than burning the nasty sticking, dense, unmanured subsoil; where coal is dear it must be dried by the atmosphere before burning, and is of course summer work. One old stump of a pollard will start and burn 140 cubic yards. The most notable and successful instance of earth-burning on a large scale is that of Mr. Randall, near Evesham. He has continued burning, winter and summer, for 20 years. Coal-dust is there very cheap, and one ton will burn twenty tons of earth. You have no doubt observed the immense mounds of earth burned for ballast or road basis for

railways, or where new streets are being made. Burned clay or brickdust is a capital manure for roots, owing to the alkalies in the soil being liberated by burning, especially so after being used as a bed for animals. It is a first-rate dry bed for sheep; a barrowful daily to about twenty sheep. It must be kept dry under cover or thatch ready for use. This is Mr. Randall's practice. When we have learned, as farmers, the value of straw for feeding purposes, we shall burn more earth and use more sparred floors. I have my eye on many thousand miles of great wide banks, mis-called fences, filled with worthless pollards and straggling bushes, untrimmed and uncared for. I would burn the lot, and then they would become a source of considerable fertility to the soil. Now they are robbers and impoverishers, and a breeding place for weeds and vermin; in fact, a regular nuisance. We can't afford to grow wood on cornfields now. Land is too dear for that, and coals too cheap. We must go for our wood to the non-rented forests of Canada.

The suggestions I have made necessarily lead us to consider perhaps one of the most useful lessons a farmer can learn—namely, "What is the most profitable amount of capital to invest per acre?" for on this depends much of his success. In a poor arable farm like mine, requiring much manure, I find £16 not enough, and I should prefer from £20 to £25. This, I know, is very much above the usual amount estimated in the general opinion, which is £10 per acre. Taking the whole country I do not believe it is so much as £5 per acre. In my balance-sheet you will have seen how this £16 was apportioned, the most important point being live stock £6 per acre. Is that too much on an arable farm? No. I wish it could be £10 per acre, as it ought to be, for the manure is in exact proportion to the live stock. In this respect no better confirmation of the soundness of the proposition, and no better example can be followed, than that of the agricultural labourer, with his one pig and his 20 rods of ground. That animal when fat is worth on an average £4 (say 8 score pounds of meat at 6d. per lb.), so that the capital invested in fat live stock is £32 per acre!!! and as the manure exactly follows the meat made, he makes probably twenty times as much manure as the average of farmers. This is a great lesson. Can we wonder that the cottage-garden is productive? I often hear labourers say, "If I don't fat a pig my garden becomes unproductive?" But then, how are we to get the capital? Well, credit is capital, and profitable capital too (although it belongs to somebody else), in industrious, careful, capable hands. Here the labourer, again, gives evidence. He buys his lean pig for £1. The miller trusts him with the three sacks of barley-meal that fattens the pig; and here, at once, is the £32 per acre capital in live stock. When he kills his pig he sells it, pays the miller, and has got the manure for his garden. Honest, industrious, capable farmers, having a lease, or an unchanging landlord, can go to the miller quite as well as the cottager does, and will find the rich cattle-dealer accommodating "for a consideration," to which he is fairly entitled. The banker obliges the cattle dealer, and uses a portion of his customers' deposits for that purpose. Have not many of our self-made men in the City of London and in your busy emporium (Birmingham) begun with no other capital than industry, honesty, and ability? Upon that sound foundation other people's capital has found a safe and profitable resting-place; so it is, or should be, in agriculture. Depend upon it, when agriculture is improved and so carried out as to become more profitable and less uncertain, capital will be readily found. But there must be "a will" and then there will be found "a way." I am bound in truth to say that it is the want of will and belief rather than the want of means that retards agricultural progress. The belief in money-making rather than the desire for cheap locomotion opened our purses, and emptied them too, to the extent of £500,000,000, in making railways. I have spun "a very tough yarn;" but if on taking it to pieces you can find a few useful threads, my object will have been accomplished, and I shall be much gratified. But as words without deeds do not carry their weight, let me invite a deputation from your Club to come and inspect my crops in July, just before harvest. You will then be able to judge practically of the results of my system. You will see seventy-three acres of wheat, which, judging from their present appearance, may compete with any crops grown on the richest land in the kingdom, although Tiptree Heath land is naturally notoriously



poor. You will probably pronounce them to be amply thick, although only sown with 1 bushel of seed per acre, and (although this is no part of our subject) you will conclude that an immense waste of seed occurs in this country which might be avoided by a better style of farming. Even the peck of wheat per acre may surprise you. You will also decide whether the money spent in procuring the absence of weeds is remunerative. You have had before you my balance-sheets (truthful copies of my accounts), and have therefore the means of judging by an inspection of the farm whether this year, be the price what it may, the crops are likely to prove remunerative. Believe me when I say that my sole object in making these remarks, and giving you this invitation is, as it always has been and ever will be, a sincere desire to increase and cheapen the food, and enlarge the sphere for employment of the British people, and concurrently to improve the farmers' and landlords' profit, and the general well-being and well-doing of our common country. This, in my opinion, is, in a

national point of view, the most important of our duties. The stomach cannot wait. The food question acts for good or for evil on all other interests, which are therefore more or less subservient to and dependent upon its quantity and price—revolutionary and rebellious principles find little room in well-filled stomachs; but hunger breeds discontent and fosters crime. The margin for agricultural improvement is, in this country, immense. I have often stated, and that statement has never been contradicted, that with skill and capital our home-food supply (meat and bread) might be more than doubled. Tiptree Farm is a proof of this, because its average quality is much below that of the kingdom, while its produce is much more than double that of the country at large. I am no participator in a fear of foreign competition. Let us, therefore, be dissatisfied with things as they are; let us apply our will (capital will speedily follow) to the better and cheaper feeding of Mr. John Bull.

## ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

MONTHLY COUNCIL, Wednesday, June 3, 1868.—

Present: The Duke of Richmond, K.G., president, in the chair; Lord Bridport, Lord Kesteven, Lord Tredegar, Sir J. V. B. Johnstone, Bart., M.P.; Sir A. K. Macdonald, Bart.; Sir W. Miles, Bart.; Sir H. Vane, Bart.; Sir Watkin W. Wynn, Bart., M.P.; Mr. Amos, Mr. Baldwin, Mr. Barnett, Mr. Bowly, Mr. Cantrell, Colonel Challoner, Mr. Davies, Mr. Dent, M.P.; Mr. Druce, Mr. Edmunds, Mr. Brandreth Gibbs, Mr. Hassall, Mr. Holland, M.P.; Mr. Hornsby, Mr. Hoskyns, Colonel Kingscote, M.P.; Mr. Milward, Mr. Pain, Mr. Randall, Mr. Ransome, Mr. Sanday, Mr. Shuttleworth, Mr. N. C. Stone, Mr. Torr, Mr. Thompson, Mr. Webb, Mr. Wells, Major Wilson, Mr. Jacob Wilson, and Dr. Voelcker.

The following new members were elected:—

Anderson, Charles G., Countesthorpe, Leicester  
Arablin, W. St. Julien, Englefield Green, Surrey  
Badeock, Rev. Thomas, Fleckney, Market Harborough  
Berridge, Thomas, Sutton, Lutterworth  
Berry, William, 95, High-street, Leicester  
Bluecke, Rev. William Strong, Willoughby, Lutterworth  
Bowden, W., jun., Prospect House, Cirencester  
Brierley, Harry, Church Lawford, Rugby  
Brook, Charles, Enderby Hall, Leicester  
Burley, Wm. Robinson, Leicester  
Burney, George, Millwall, London, E.  
Catlin, Richard Edgar, Leicester  
Chamberlain, Henry B., Ivy House, Desford, Leicester  
Chapman, William, Apethorpe, Peterborough  
Clarke, John Sanders, Seating Hall, Lutterworth  
Cooper, Alfred Allen, Leicester  
Crawford, Miss, Hill House, Farnsfield, Southwell  
Dain, M. J., Leicester  
Davies, Benjamin, Huyton, Chorley  
Duff, Alexander M., 37, Gallowtree Gate, Leicester  
Eckersley, James, Burnt House, Chorley, Lancashire  
Ellis, James, Glenfield, Leicester  
Emberlin, Horatio Edwin, Oadby, Leicester  
Fletcher, George, The Friars, Leicester  
Fletcher, Wm. Ainton, Shipton Oliffe, Cheltenham  
Foster, John, Copson Lodge, Hincley  
Fowke, Frederick Thomas, Lowesby Hall, Leicester  
Fowler, Robert, Leeds  
Foxton, George, Prebend Terrace, Leicester  
Furness, Rev. John Monteith, Oakfield, Rugby  
Gee, John, Welford, Rugby  
German, William, Measham Lodge, Atherstone  
Gerrard, John, Adlington, Chorley  
Godfrey, William, Borough Fields, Walton, Burton-on-Trent  
Goodacre, R. J., 22, Lower Hastings-street, Leicester  
Green, William, Leicester  
Grinston, Captain R. V. Sylvester, Leicester

Hack, Matthew, Leicester  
Harcourt, Edward Wm., Stanton Harcourt, Witney  
Hardwick, Richard, Bowdon, Altrincham  
Harrison, Thomas, 3, The Crescent, Leicester  
Hartopp, Sir John, Bart., Four Oaks Hall, Sutton Coldfield  
Hassall, Thomas, Rearsby Rectory, Leicester  
Hawkes, Thomas, Tiverton  
Higginson, John, Humberstone Road, Leicester  
Hill, Abraham, St. George's, Leicester  
Hodges, Frank, Mayfield, Leicester  
Hodges, George Henry, Stonygate, Leicester  
Hodges, John Edward, Stonygate, Leicester  
Hodges, Thomas William, Mayfield, Leicester  
Hollingworth, John, Market-street, Leicester  
Hood, the Hon. A. W. A. Nelson, Cumberland Lodge, Windsor  
Hoskyns, Rev. Henry James, Blaby Rectory, Leicester  
Howard, E. M., Great Withingham, Norwich  
Howland, A. R., Ludesdon House, Thame  
Hubbersty, Wm. Philip, Wirksworth  
Innocent, Arthur, Kibworth, Beauchamp, Leicester  
Johnson, Wm. Henry, Old Hall, Braunstone, Leicester  
Jones, John, Maes-y-pandy, Machynlleth, Merionethshire  
Mayman, B., 56, Drury Building, Water-street, Liverpool  
Miles, William, Leicester  
Odames, Samuel, Leicester  
Overton, Robert, jun., Leicester  
Ouston, H. A., Bushloe House, Great Wigton, Leicester  
Parrish, Richard, The Uplands, Bridgnorth  
Parrott, John, jun., Norfolk Farm, Staines  
Pearson, Wm., North Kilworth, Rugby  
Pochin, R. G., Braunstone House, Leicester  
Potterton, Wm. H., Boughton Grange, Northampton  
Preston, James, Leicester  
Pugh, Wm. C., Stratford Villa, Woburn Road, Croydon  
Ratcliff, Thomas, Norton-juxta-Twyeross, Sheepy, Atherstone  
Sarson, John, Leicester  
Saunders, Charles R., Nunwick Hall, Penrith  
Shipman, Robert M., Bredbury, Stockport  
Stone, Joseph C., Rowley Fields, Leicester  
Stone, Samuel, Glenfield House, Leicester  
Tate, Wm. James, St. Margaret's, Dunham Massey, Altrincham  
Thorpe, William, Shenton, Nuneaton  
Tyrwhitt, Sir Hy., Bart., Ashwell Thorpe Hall, Wymondham  
Whitaker, B. I., Healey Hall, Tickhill, Rotherham  
Willett, Geo. W., West House, Portland Place, Brighton  
Wood, Charles Henton, Thurlaston, Hincley  
Wood, Rev. W. Paul, Saddington Rectory, Market Harboro'  
Worswick, R. W., Normanton Hall, Hincley

FINANCES.—Major-General Lord Bridport presented the report of the committee, from which it appeared that the Secretary's receipts during the past month, amounting to £1,135 1s. 6d., had been examined by the committee, and by Messrs. Quilter, Ball, and Co., the Society's

accountants, and were found correct. The balance in the hands of the bankers on May 31 was £3,508 2s. 4d. The committee had heard with regret of the death of Inspector Bradstock, of the Metropolitan Police, who for many years rendered good service to the Society at their annual Shows, and desire to record their expression of sorrow, and suggest that the Secretary be empowered by the Council to convey their sincere sympathy to his widow. This report was adopted.

**JOURNAL.**—Mr. Thompson, chairman, reported that in consequence of the lamented death of their late Editor, it has been necessary to make temporary provision for carrying on the *Journal* work, and, subject to the approval of the Council, the committee have made arrangements with Mr. Goodwin to bring out the next Number. The committee recommended that a list of members be printed in the next Number. The arrangements connected with filling up the vacant post of Editor having been the subject of much discussion at two successive meetings of the committee, at which considerable variety of opinion was expressed, it was finally resolved that the question should be referred to the Council for their consideration and decision. This report was adopted. Mr. Randell having moved that in future the Secretary of the Royal Agricultural Society of England be also Editor of the *Journal*, was seconded by Lord Bridport, and supported by Mr. Milward, Colonel Kingscote, M.P., Mr. Bowly, Mr. Holland, M.P., Mr. Jacob Wilson, and Mr. Torr; and opposed by Colonel Challenger, Mr. Thompson, and Mr. Dent, M.P. The wording of the motion having been altered to "That after the 1st January, 1869, the offices of Editor and Secretary shall be held by the same gentleman," it was supported by Lord Bridport, and, after a long discussion, carried by 23 Ayes to 5 Noes.

On the motion of Sir W. Miles, a committee, consisting of the President, Earl Cathcart, Lord Bridport, Mr. Dent, M.P., Mr. Edmunds, Mr. Brandreth Gibbs, Mr. Wren Hoskyns, Mr. Randell, Mr. Thompson, and Mr. Wells was appointed, to consider how the decision is to be carried out.

**CHEMICAL.**—Sir John Johnstone stated that Dr. Voelcker reported that he has in preparation a paper on the special causes of the beneficial effect of Clover as a preparatory crop for Wheat, embodying some of the laboratory results of an investigation into the chemistry of the Clover plant. There is also standing over from the last *Journal* a paper, already in type, on the composition and nutritive value of *Trifolium striatum*, a new kind of Clover, especially adapted for poor sandy soils. The committee beg to call the attention of farmers to the fact that the number of adulterated guanos this season in the market is unusually large; and in some cases, where it has been sold by auction, the sample proved to be not worth one-fourth of the price paid for it. The committee cannot help expressing their regret that the trade in spurious manures should receive encouragement by the system of purchasing manures (an article so liable to adulteration) by auction sales.

**LEICESTER MEETING.**—Mr. Thompson, chairman, reported the recommendation of the committee, that Mr. Elphick be engaged as Assistant-Steward, on the usual terms; that shedding and hurdles, as per entries, be ordered from the contractor; that 10,000 stock catalogues and 5,000 implement catalogues be printed; that the charity and union workhouse schools shall be admitted free to the show-yard on the last day of the show, subject to such regulations as the local committee think desirable.

**Manchester Meeting, 1869.**—That it is desirable that some member of Council should superintend and direct the preparation of the land for the trial of implements, and make arrangements for the supply of forage to the show-yard. The committee recommend that Mr. Davies

be requested to undertake this duty, and authorized to make all the necessary arrangements, and a statement of the probable quantities required to be sent to him by the Secretary. This report was adopted.

**IMPLEMENTS.**—Mr. Thompson reported the following list of prizes, to be offered for competition in 1869:

*Machines and Implements for the Harvesting of Crops.*

Sect. I. For the class of mowing machines—for two-horse machines, £50; for one-horse machines, £30.

Sect. II. For the class of hay-making machines, £30.

Sect. III. For the class of hay collectors, £15.

Sect. IV. Reaping machines: 1. For the class of reaping machines with self-delivery, in sheaf, clear of the horse track, £60; 2. For the class of reaping machines with self-delivery, in swathe, clear of the horse track, £60; 3. For the class of reaping machines without self-delivery, £30; 4. For combined reaping and grass-mowing machines, £30; 5. One-horse reapers, £30.

Sect. V. For the class of horse-rakes, £30.

Sect. VI. Waggon: The class of—1. Pair-horse waggons, £30; 2. Other waggons, £20.

Sect. VII. Carts: The class of—1. Single-horse carts, £20; 2. Two-horse carts, £20; 3. Harvest carts, £15; 4. Market carts on springs, £10; 5. Liquid manure carts, £10.

Miscellaneous awards to agricultural articles and essential improvements therein (10 Silver Medals).

This report was adopted.

**EDUCATION.**—Mr. Holland, M.P., stated that the committee recommended that the thanks of the Council be given to each of the Examiners for the service rendered, and that each of the nine gentlemen who are not members of Council be presented with the sum of £5. Of the £200 allotted to education, £119 14s. 6d. has been expended as follows, viz., 9 Examiners, at £5 each, £45; awarded in prizes, £60; expended in printing and advertisements, £14 14s. 6d.: £119 14s. 6d. This report was adopted.

**SHOW-YARD CONTRACT.**—Mr. Randell, chairman, presented the following report from the surveyor:—

"The Show-yard works at Leicester are progressing very satisfactorily, and are fast approaching completion. The main entrances, and the whole of the Society's portable buildings are ready for use. The outer fences and gates are also completed; two-thirds of the cattle sheds, horse-boxes, and stables are also erected. Seed and model sheds complete, and the whole of the implement sheds, including those erected by the Society for exhibitors in machinery in motion yard, are in a forward state; 7,000 feet of the former, and the whole of the latter, are already completed. The fodder and nurse-cow sheds are also completed. The Local Committee are making great efforts to make everything complete, the levelling already done in the show-yard is far more than asked for, and the roads and approaches, both from railway-siding to receiving yard, and to the entrances for carriages and foot people, when completed (and is already in a forward state), will be everything that can be desired. The railway siding is in a forward state, but the dock and platform accommodation is insufficient; this I have pointed out to the local engineer, and orders have been sent him from Derby to increase it."

It is recommended that the Royal Horticultural Society be asked to join in the expense of erecting a shed over turnstiles in the fence between the Show-yard and their grounds; one of the Society's turnstiles, and one belonging to the Horticultural Society, being placed in such fence. The surveyor having certified that the contractor is now entitled to the sum of £2,000, the committee recommend the payment of that sum. The committee recommend that the surveyor go to Manchester, and prepare a preliminary plan of the Show-yard, previous to the next Council meeting. This report was adopted.

Mr. TORR having called attention to the subject of refreshments in the Show-yard, it was referred to the Manchester Committee.

**JUDGES.**—A committee, consisting of Lord Bridport, Sir Archibald Macdonald, Bart., Colonel Kingscote, M.P.,

Mr. Dent, M.P., Mr. Amos, Mr. Bowly, Mr. Davies, Mr. Druce, Mr. Brandreth Gibbs, Mr. Randell, Mr. Milward, Mr. Sanday, Mr. Torr, Mr. Webb, Mr. Wells, Major Wilson, and Mr. Jacob Wilson, were appointed to recommend judges of stock, implements, wool, butter, and cheese; whose report would be presented at a Special Council on the 16th inst.

A suggestion to the Council made at the general meeting by Mr. Lewis Fytche—"Mr. Miles' paper on Horse-Shoeing contained in Vol. XVIII. of the Journal being out of print, that 1,000 copies of the same be printed for the use of Members"—was referred to the Journal Committee; and that by Sir George Jenkinson, Bart.—"That the Council will, at any future show after

the present year, offer a few prizes for village farriers or blacksmiths to compete for, in making, fitting, and nailing-on shoes on horses, both for hunters and for those used for agricultural purposes; certain conditions to be specified, and inspection to be made of the work done by a properly qualified veterinary surgeon, by whom the principles to be followed and the faults to be avoided shall be pointed out to the various competitors, and the prizes for this class shall be awarded by a committee of, say, three gentlemen, specially appointed for that purpose, assisted, perhaps, by the veterinary surgeon above mentioned: this has been tried in Gloucestershire, and with very great benefit"—was referred to the Manchester committee.

## ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.

The eighth annual dinner of this institution took place on Wednesday evening, June 3, at the Freemasons' Tavern, under the presidency of Viscount Enfield, M.P. About 100 gentlemen sat down.

It appears that there are on the books of the institution 20 male pensioners, at £26 per annum; eight married pensioners, at £40 per annum; 32 widow pensioners, at £20 per annum; four unmarried orphan pensioners—the orphans, however, being women of the respective ages of 60, 67, 63, and 80; and four widow pensioners, at £10 per annum. In addition to these the society has in the course of its brief career aided 23 male pensioners, seven widow pensioners, and three unmarried orphan pensioners, all deceased. The operations of the society involve an expenditure of about £5,000 a year, and, although it has £20,000 of funded property, it still requires, to meet present demands, an income of about £5,000 from subscriptions and donations. This sum is obtained from hundreds of supporters all over the country, who are however unequally distributed, as some agricultural districts do not contribute so liberally as others, owing possibly to the fact that the claims of the institution have not been equally advocated in all.

After proposing in suitable terms "The Health of Her Majesty,"

THE CHAIRMAN gave "The Prince and Princess of Wales, and the other Members of the Royal Family." In doing so he spoke of the interest which the present race of English sovereigns has always manifested in regard to agriculture; observing that George III. received the appellation of "The Farmers' Friend," while the present heir to the throne had combined with a love of country pursuits a great fondness for field sports. The noble lord also congratulated the assembly that the Princess of Wales—the good and sweet princess who had endeared herself to the whole nation—had again delighted the public by appearing among them after her protracted illness.

The next toast was "The Army, Navy, Militia, and Volunteers," in proposing which the CHAIRMAN adverted to the Abyssinian Expedition, and the success which had crowned it, as affording fresh evidence that the army of Great Britain was equal to any emergency that might arise.

Lieut.-Col. Sir CHARLES RUSSELL, M.P., in responding for the army, also alluded to the Abyssinian Expedition, and remarked that one great advantage connected with it was the salutary impression which it had made on the Eastern mind. He also observed that that was the last time he should appear on such an occasion as a representative of the army, as he had already placed his commission in the hands of her Majesty.

The Rev. Mr. McCALL, as a Volunteer chaplain, returned thanks for the Volunteers, and congratulated the company on the improved position of the nation relatively to other nations in consequence of the organization and efficient condition of that branch of the military service.

THE CHAIRMAN then rose and said, in bringing under their consideration the toast of the evening, which was "Prosperity to the Royal Agricultural Benevolent Institution," it was his wish to detain them as short a time as possible. Still there were circumstances connected with their gathering there on

that occasion which he should be sorry to omit noticing, because he was anxious that, through the medium of the public press, the advantages which the institution had conferred, was conferring, and was likely to confer, upon the agricultural interest throughout England, should be well known (Hear, hear). With their permission then he would glance for a few minutes at its past history; he would next consider its present position; and then he would trust to their generosity, to their sympathy, and to their recommendations of its claims among their friends and neighbours, for its future success (cheers). He believed he was correct in saying that the institution owed its origin, some eight years ago, principally if not entirely to the exertions of a gentleman who was now seated on his left hand, his friend Mr. Mechi (Hear, hear). Feeling deeply impressed with the fact that in this country, a country so peculiarly devoted to agricultural pursuits, every guild, and every profession, excepting the agricultural interest, had some benevolent or charitable institution connected with it, Mr. Mechi directed his exertions to provide a remedy for this state of things; success attended his exertions, and the institution was now in the eighth year of its existence (Hear). He need scarcely remind them that its principal object was to provide pensions for *bond fide* farmers, their widows, and unmarried orphan daughters, and to educate their orphan children; and he thought he could not do better than present in as concise a form as possible its annual budget for their consideration. There were at that moment then 68 pensioners of the Society, consisting of 20 males, who received £26 per annum each, 8 married couples receiving £40 per annum each, 32 widows with £20 a year each, and 4 unmarried orphan daughters and 4 widows who received £10 a year each. Having looked into the balance-sheet he found that on the 18th of February last there was an excess of income over expenditure of £760, whilst the funded property of the institution consisted of £12,000 in Consols and £8,000 in the Three per Cents. Reduced, in the whole £20,000, which was a very good nest egg (loud cheers). An analysis of the subscriptions from the different counties, however, was somewhat a source of dissatisfaction; and his friend Mr. Mechi having attended to this subject in a letter which he had written to the public prints, he (Lord Enfield) might perhaps be allowed to refer to it here. It should be remembered that the institution made no distinction whatever between counties, and that all who received the proper number of votes were elected and got their pensions irrespective of the counties they might come from. But he found that there were some counties which did not respond to the appeals of the institution so generously as they ought in proportion to their acreage. There was, for example, the great county of Devon, with 1,654,400 acres; it contained only 45 subscribers. Yorkshire, again, with 3,735,000 acres, had only 48 subscribers; whilst Hampshire, with its 970,470 acres, had 641 (cheers). Essex, with 921,120 acres, had 645 subscribers, and the county with which he was more immediately connected, Middlesex, with 186,480 acres, he was glad to see mustered 468 subscribers (cheers). Lancashire, with its 1,130,240 acres, on the other hand, furnished only 12 subscribers; Lincolnshire, with an acreage of

1,671,040, only 64 subscribers; whilst Northumberland and Cumberland together had only 8 subscribers, though their united acreage amounted to 2,172,160. He spoke in no cavilling spirit; but he really thought that as all the counties enjoyed the same advantages, without distinction, they ought to send a number of subscribers that was in fair proportion to their acreage (Hear, hear.) Now, with regard to farming generally, he was quite sure that in that society, where there were some of the most distinguished agriculturists from all parts of England, it would be bad taste in him to say anything on the practical part of the subject. If he did so he knew he should only betray his own ignorance; he should, therefore, only tread upon what he believed to be safe ground (laughter.) He looked upon farming in two points of view; first, as an amusement, and, second, as a profession or occupation. As an amusement, it was the most healthy, the most moral, and the most English that any gentleman could indulge in (Hear, hear.) But as a profession or occupation, he was quite sure there was none that was embarked in more seriously, and oft-times with greater misgivings (Hear, hear.) In every profession they knew well that, without the blessing of Providence, it was lost labour to rise early, late take rest, and eat the bread of carefulness; but when they considered that the agricultural interest was more than any other dependent upon that blessing for success, that at the proper time the early and the late showers, the dry winds, and the vivifying and warm sunshine were required, he was sure that the farming class must feel above all that they were dependent upon Providence, and that this institution, more than any other, gave them the means of laying by store for bad times (cheers.) On looking through the list of those who were pensioners of the Society, he found that nearly all the causes by which those persons had become pensioners on its bounty were loss of crops, bad times, heavy rains, mildew, blight, cattle plague, and other events over which human beings had no control whatever, and which were solely at the disposition of Providence (Hear, hear.) One source of gratification to him in the Society's report was to find that so little was spent in bricks and mortar. On reading the account of the last annual dinner he observed that mention was made of the fact that with the exception of occupying two rooms at Charing Cross, the Society have nothing to do with bricks and mortar (Hear, hear.) Consequently they were not called upon to add a wing to a building one year, and another wing another year; and it must be a source of comfort to those who were dependent upon their bounty to know that they had not to leave their native homes, their healthy villages, or their breezy downs, to take up their abode and be stewed in buildings in the heart of a great and stifling city, where they might be said to a certain extent to be deprived of their liberty (cheers.) The good which the institution did was done at home. The pensioners received their pensions at home, and had not to leave the places with which they had been identified all their lifetime from earliest childhood (Hear, hear.) He remembered having been personally canvassed some years ago to give his support to the Society, by their excellent secretary Mr. Shaw, who then made a suggestion to him which he would recommend to his brother members. It was that, whenever they attended any agricultural gathering in their respective counties, they should always seek an opportunity of saying a few good words in behalf of the institution (Hear, hear.) The good which it did only required to be known, and he was sure there would be hearty help and cordial response from the length and breadth of the land in aid of its object (Hear, hear.) It might be asked in whose behalf he made this application; his answer was, on behalf of the farmers of England. And now, he was going to do what was, perhaps, a rash and a dangerous thing. He was going to draw their picture, but it was a mere outline sketch, and he must leave his hearers to fill in the details. First, the farmer was a typical Englishman, attached to his country, and a supporter from his birth of the Queen and Church (loud cheers.) In the next place, he was a strong politician, but at the same time he was a generous opponent, and respected consistency in himself and others (cheers.) He was also a hospitable man. He was a true sportsman. He never grudged his landlord a good day's shooting, but he deprecated from the bottom of his heart, as he (Lord Enfield) did, the pernicious and mischievous system of over-preserving, which was the ruin of many a farm (Hear, hear.) Lastly, he was a warm admirer of the three noblest works of creation—a handsome woman, a clever horse, and a well-shaped hound

(loud cheers and laughter). This, he admitted, was only a fancy sketch rather rudely drawn, but it was one which a little observation had told him was not an untrue one; and in conclusion, re-echoing the old sentiment of "speed the plough," he would offer three wishes. One was, that the good understanding which he hoped now more than ever existed between landlord and tenant—between those who tilled the soil and those who served under them—might long continue to exist; that the farmers of England would, as they had hitherto done, take every opportunity of doing good to themselves and their neighbours, by making use of all those advantages which modern experience in machinery and chemistry would suggest to them; and that by the blessing of Providence the expectations which at the present moment we might fairly entertain of a bountiful and full crop might be more than realised this year (loud cheers.) He thanked them respectfully for the attention with which they had listened to him in proposing the toast, and with all sincerity and earnestness he called upon them to join him in drinking continued prosperity to the Royal Agricultural Benevolent Institution of England (The toast was received with three times three, and loud cheering.)

Lieutenant-Colonel Sir C. RUSSELL, M.P., proposed "The Chairman;" and after the toast had been drunk with cordiality the noble lord briefly returned thanks.

Mr. MEECH had been entrusted with the duty of proposing as the next toast, "Prosperity to the Three Great Agricultural Societies of the United Kingdom." In doing so, however, he need not enlarge upon the great benefits which these institutions had conferred upon British agriculture; but he was happy to say that in connection with the toast he was to add the name of one of the best farmers in England, under one of the best landlords in England: he alluded to his friend Mr. John Hudson, of Castleacre (cheers.) If the whole country were farmed, taking arable and pasture, in the same way as that portion of the county of Norfolk which was the property of the late Mr. Coke, and the present Lord Leicester, and which was held by Mr. Hudson, we should not hear so much as we now did about the necessity of foreign importation (Hear, hear.) They had been drinking his (Mr. Meech's) child's health that evening, and he could not pass over the subject without saying a few words in regard to the bantling. At present it was a mere infant; but if he could come again a hundred years hence, which he should certainly not do, he believed he should be astonished at the proportions it would have attained. He had good grounds for saying so; for we had 60 million acres of land, beside 17 million of mountain and waste: and if every farmer only subscribed a penny an acre they would have an income of £250,000 a-year, or if he subscribed but a farthing an acre they would have an income of more than £60,000 a-year. So that he was encouraged to hope that his bantling would by-and-by grow into a good-sized man. (Cheers.)

Mr. J. HUDSON, of Castleacre, in responding, said, the people of this country could not afford to have half crops; they wanted cheap food—cheap bread and cheap meat—and it was only through landowners giving great encouragement to tenants, and the exertions of the tenants themselves, that that national want could be met. Happily agriculturists were marching on in the right direction, and the rate of march was accelerated by the accession of steam. A few years ago no one scarcely believed in the applicability of steam to the cultivation of the soil; but he had lived to see the day when steam was so applied, and he had no hesitation in declaring that he had himself used it with advantage. Cultivation had of late made great strides, and farmers must put their shoulders to the wheel, and they will double the produce of the land.

The Rev. G. C. BERKELEY proposed "The Executive Council" which toast was acknowledged by Mr. John Collins. Among the remaining toasts were "The Secretary" (Mr. Charles Shaw), "The Stewards," and finally "The Ladies."

The subscriptions announced in the course of the evening included 25 guineas from her Majesty, and 10 guineas from the Prince of Wales, the aggregate being about £4,000.

The musical arrangements were under the direction of Mr. G. Perren, who was ably assisted by Miss Mabel Brent and Miss Palmer, Mr. T. Lawler, and Mr. L. Hatton, the last-named gentleman presiding at the piano-forte.

Previous to the dinner, a special meeting of the Council of the Royal Agricultural Benevolent Institution was held at

the Freemason's Tavern. Present, Messrs. C. S. Cantrell (chairman), J. Collins, H. Corbet, A. Garrett, J. Howard, J. Hudson, A. H. Johnson, J. J. Meehi, J. Naish, T. Scott, G. Shackell, and W. Vivian.

The business of the meeting was confined to the consideration of the necessary steps to be taken in filling up the secretaryship, about to become vacant from the resignation of Mr. Charles Shaw.

It was resolved that Mr. Shaw's tenure of office close at Michaelmas.

It was resolved on a division, by 6 to 5, that an advertise-

ment inviting applications for the appointment be *not* inserted in *The Times* and the agricultural journals.

It was resolved that the appointment be filled up at a meeting of the Council, to be called for the first Monday in July.

Mr. Charles Shaw, jun., a candidate for the office, had an interview with the Council.

It was proposed also to call on Mr. J. N. Lee, who, however, did not appear to be in attendance.

The Council sat for nearly two hours, and the discussion was at times very animated.

## THE BATH AND WEST OF ENGLAND SOCIETY.

### MEETING AT FALMOUTH.

Cornwall—of which Falmouth is one of the principal towns—is in popular estimation one of the last counties of England with which agricultural associations are or could be connected. The very aspect of the country indeed is supposed to give rise to associations anything but Arcadian. Bare and rugged hills; bleak moors; a coast singularly wild, abrupt, and grand in its outline, fringed here and there with wood, the appearance of which indicates the hard struggle they have to maintain against ungenial air and biting frosts—all tell of a country the characteristics of which, in an agricultural aspect, are the very antipodes of the rich rolling lands, the fine soil, and wooded glades of more favoured counties of Merrie England. The very population, too, in their garb and manner tell of a mode or modes of life very different from that met with in purely agricultural districts. Nor is the cause of this supposed difference difficult to be met with. Everywhere around are the marks of mining operations, which afford subsistence to the main part of the population. Such may be said to be the popular or Guide Book—not published, it is needless to say, in the county—view of this, in many respects, remarkable part of her Majesty's dominions. Much, if not indeed the whole of it, does indeed apply to one part of Cornwall, but that is comparatively a limited part. Certainly it does not apply to the part which is passed through from Plymouth to Falmouth, nor in the country immediately around the latter town. Of the whole ride extending between those two towns it may indeed be said that in point of rural and picturesque beauty some of the districts of England celebrated in this way will have a difficulty to compete with it; in some respects it cannot be excelled. The lateral valleys, for example, which open up on both sides of the railway, are very numerous and very beautiful, spanned by viaducts of great height and length, and rich in wooded valleys and bosky dells. Little arable land comparatively is seen from the railway, the land being chiefly under pasture, and, as may be gathered from what has been above stated, there is much wood, which gives a rich and charming appearance to the country. And truly ample time is given to the traveller to observe the scenery through which he passes; for, although now and then the train—at least the one we travelled with was possessed of this peculiarity—passed pretty rapidly on, it made up for the rapidity of its flight at such times by the staid slowness at others, and by the patient placidity with which it waited at stations, which, fortunately for the impatient traveller, were generally at points of considerable beauty. We were supposed in the official mind to be travelling "express;" but the thought was forced upon the mind of him who was accustomed to more pushing modes of progress, if that was the express, what could possibly be the slow

train? that forced one back to the good old coaching days, when "slow but sure" was the motto.

From what we have stated it will have been surmised, what is indeed the fact, that the agriculture of Cornwall is peculiar. There is, or at least was, in the old system, little pasture land, using this term in its highest significance; yet, under the influence of good husbandry, the soil bears a sward of a peculiarly firm texture. Under the old system, cereals were taken off the land in succession, and the exhausting effects of such a system may be easily conceived. But with the introduction of the alternate and green-cropping system of cultivation, a great improvement has taken place.

The situation of the show-yard is very beautiful, in a field sloping gently down, and almost to the edge of the bay. The upper part is high enough to give a splendid view on either side. And the weather of this, the first day, was all that could be desired to give the utmost degree of artistic effect to the whole scene. A fine clear sky, with rolling clouds in it, sufficient to give that play of light and shade on hill-top and valley-side so dear to the lover of Nature, and so prolific of artistic effect. The sea, like a lake in its calm beauty, lay shimmering in the sun, speckled with whitened sail of stately ship or tiny boat.

The entries of stock were small, compared with the meeting of the Society at Truro, in 1861. The show, however, was on the whole a good one; and although numerically weak, the cattle, sheep, and pigs will contrast favourably with any of the Society's previous exhibitions. There were 79 entries of cattle, as compared with 134 in 1861; sheep 141, as against 234 at Truro; horses 36, compared with 89; and pigs 86, against 42. The cattle consisted of Devons 49, Shorthorns 24, Herefords 6; of sheep—Leicesters 48, Cotswolds 16, South Downs 13, other Downs 40, Somerset and Dorset horned sheep 23. Horses for agricultural purposes numbered 8, hunters 17, hacks 4, and ponies 7. There was, as usual, a varied display of articles of taste and utility in the building devoted to art manufactures.

The Devons were remarkably good, comprising 24 bulls and 25 females. In class 1st, bulls not exceeding 4 years old, there were eight entries; the competition being between Mr. Turner's Albert Victor, Mr. Mason's, a local exhibitor, bred by Mr. Davy, of Flitton; Mr. Buller's, Mr. Walter Farthing's, and Mr. Clarke's, bred by Mr. Farthing. The judges had no difficulty in giving Mr. Turner the first prize, and they awarded the second to Mr. Mason, highly-commended Mr. Buller's, and commended Messrs. Farthing's and Clarke's. In class 2nd—bulls not exceeding 2 years old—there were sixteen entries. The competition was very spirited, and altogether this was an unusually good class. The judges selected

six, viz. Mr. Walter Farthing's Duke of Gotherlney, Mr. Farthing's Master Arthur, Mrs. Tremaine's Lord Aylmer, Mr. Beckle's Perfection, Mr. Buller's, and Mr. Wm. Smith's; and, after a long consultation, they awarded the first prize to Master Arthur, a very thick good yearling, well got up; but the public thought the second-prize animal, Mr. Buller's, was more matured, and had better points, and that the first-prize one would not train so well. We believe the judges were not unanimous in this decision. Mrs. Tremaine's and Mr. W. Smith's entries were highly-commended, and Mr. Bickle's and Mr. Farthing's commended. Class 8 contained nine entries, and among them were some good cows. The first prize was deservedly awarded to Mr. John A. Smith, of Bradford Peveril, who also had another highly-commended; the second prize going to Mr. Walter Farthing, Mr. Tremaine's Rose 2nd being highly-commended. Class 4—heifers not exceeding 3 years old—brought together a very beautiful lot, and which gave the judges some trouble. The first prize was eventually awarded to Mr. Buller, of Downs, for a remarkably good heifer, which, we hear, is intended for the Royal at Leicester; Mr. Turner winning the second with a very beautiful heifer, and Mr. Walter Farthing and Mr. Hambro receiving high-commendations. Class 5—heifers not exceeding 2 years—contained six entries. This was not so good a class as the previous one. Mr. Turner's Duchess 6th won the first prize, Mr. Buller's the second, and Mr. Walter Farthing's was highly-commended. Lord Falmouth was an exhibitor in each of the Devon classes, but was not successful; as his lordship's best animals were kept back for Leicester, where, we hear, he will be in force.

The SHORTHORNS formed a very good section of the Show. Among the exhibitors were Lady Pigot and Mr. Stratton; but the prizes usually carried off by these far-famed prize-takers were on this occasion retained in Cornwall. Messrs. Hosken and Son's cows and heifers were much admired and extolled, and it is very questionable if so good a lot has ever before been exhibited from one herd at any of the Society's meetings. In class 6—bulls not exceeding four years old—there were only three entries. The competition was, however, severe between Lady Pigot's and Mr. Stratton's, opinion being divided as to the best animal. The first prize, however, was awarded to her ladyship's Charles le Beau, and the second to Mr. Stratton's Lamp of Lothian; Mr. Hosken and Son's Prince Frederick 2nd, bred by themselves, receiving a commendation. Had not the age been limited to four years there would have been more entries in this class, and we very much doubt the policy of the restriction. When the prize-list first appeared we were informed that this, and there being no class for yearling bulls, caused much dissatisfaction. We would also suggest the Society's offering a third prize in some of the classes. In class 7—bulls under two years—there were nine competitors. The judges selected five, viz., Lady Pigot's Rosolio, Lord Radnor's Orkney, Mr. Pollard's Lord Lyon, Mr. W. Trethewy's Duke of Cornwall, and Mr. Stratton's James 2nd, giving the first prize to Mr. Pollard's Lord Lyon, eight months old, a very thick and good red calf, with capital quality, got by Rectifier (22,887), grandsire 7th Duke of York (17,754); the second to Lady Pigot, and a high commendation to the Earl of Radnor. Although Mr. Pollard's calf was much admired, it was thought by many that Lady Pigot's should have been placed before him. In class 8—for the best cow—there were five competitors. Messrs. Hosken and Son exhibited three splendid animals, bred by themselves, and which would be no discredit to the Royal, and but for one or two of them being down-calving at that time, they would have put in an appearance at Leicester. Lady Pigot sent her Queen of Rosalia; but she was

beaten by Messrs. Hosken and Son's Rosebud, their other two cows, Countess and Carnation, being highly commended, and Rosalia taking second honours. In class 9—heifers not exceeding three years old—there were but three entries. The competition, however, was exceedingly strong between Messrs. Hoaken and Son's two heifers, Butterfly and Ruby, bred by themselves, and Lady Pigot's Dame of Rosalia. The Messrs. Hosken were, however, again eminently successful, winning both prizes, her ladyship being awarded a high commendation, at which her herdsman was indignant, and with very bad taste declined the proffered honour. The public opinion went with the judges. In class 10—heifers not exceeding two years—again there were only three entries, but the competition was very keen. The judges, however, preferred Lord Radnor's Darmstadt, and awarded the "blue ribbon" to his lordship; the "yellow" to Messrs. Hosken and Son's Keepsake, and a high commendation to Mr. Stratton's Bude Light. Messrs. Hosken and Sons received continued congratulations from their neighbours and friends on their well-merited success.

The HEREFORDS do not flourish much in Cornwall, and there were only six entries in five classes, and not one of these bred in that county. It should, however, be stated that Mr. Olver, an upholder of this breed, and who has on numerous occasions been a successful exhibitor, lost several of his cattle with the plague. In Class 11—aged bulls—there were only two entries; Mr. Duckham's Reginald easily winning the first prize, and Mr. Rawle Paramore being second. In Class 12—bulls not exceeding two years old—Mr. Paramore's was the only entry, and he was awarded the first prize. In Classes 13, 14, 15, Mr. James, of Dorset, was the only exhibitor, and to his cows and heifers were awarded the first prizes.

The show of LEICESTER sheep was very good, and in Class 16—yearling rams—the competition was very keen and spirited, the Cornishmen contending most successfully. Corner, of Somerset, exhibited four; Messrs. Norris, of Devon, three; Kingdon Radmore, two; G. Turner, two; Gould, four; G. Radmore, four; and Tremaine, of Cornwall, four; Rosewarne, two; and Clarke, one. The first prize was awarded to Mr. Tremaine, and the second to Mr. Rosewarne; but several good judges preferred the second to the first prize sheep. Messrs. Corner, Turner, and Gould had each a commendation. In Class 17, for aged rams, the competition was not so great, there being only fourteen entries and eleven exhibited. Mr. Gould deservedly carried off the honours, and won the first and second prizes; Mr. Turner receiving a commendation. The other exhibitors were Messrs. Kingdon Radmore and G. Radmore, Devon, and Messrs. Tremaine and Williams, of Cornwall. In Class 18, for yearling ewes, there were five entries, and the competition very close. Mr. Inner won the first prize, Mr. Tremaine second, and Mr. Corner a high commendation. The other exhibitors were Messrs. Norris and Gould.

The CORNWALLS, though not numerous, were well represented. In Class 19, for yearling rams, there were only eight entries. The competitors were Messrs. Gillet, who showed three; Beale Brown, three; and J. K. Tombs, two; the latter winning the second, and Mr. Gillet the first prize. In Class 20, rams of any other age, there were still less; but the class was a good one; the only entries being Messrs. Gillet, two; J. K. Tombs, two; and Beale Brown, one. The first prize was awarded to Mr. Gillet, for a remarkably large and good sheep, while Mr. Gillet had another commended; the second prize went to Mr. Beale Brown; and one from Mr. Tombs was commended. In Class 21, for yearling ewes, there were but three entries, and only one of them put in an appearance—Mr. J. K. Tombs's—and these were awarded the first prize.

In **SOUTHDOWNS**, class 22, for the best yearling ram, there were eight entries, but only five exhibited: Mr. Neville Greville, M.P., winning both prizes, whilst Sir Wm. Throckmorton's two sheep were not commended. In class 23, for rams of any other age, the first prize was awarded to Mr. Greville, M.P., and the second to Sir Wm. Throckmorton; there were four entries, but two only were shown. In class 24, yearling ewes, Lord Radnor and Sir William Throckmorton, were the only competitors, and the judges awarded the first prize to the latter for a very beautiful and even lot; his Lordship winning second honours. These classes were much admired; but the public thought the Hampshire, Shropshire, and Oxford Downs likely to yield a better profit to the farmer.

With the **HAMPSHIRE DOWNS** there was not much competition: Class 25, yearling ram, eight entries, and five exhibited: the first and second prizes were awarded to Mr. Rawlence, the other exhibitors being Messrs. Moore and Coles. Class 26, old rams, four entries, and two exhibited: Mr. Rawlence obtaining the first and Mr. Coles the second. Mr. Moore entered two sheep, but they were not sent. Class 27: Mr. Rawlence made two entries in this class, but only one lot was sent: the judges awarded him the first prize, and for the second there was not any competitor.

Amongst the **OTHER DOWNS**, class 28, for best yearling ram, Lord Falmouth exhibited four Shropshires, and Mr. Davy two; Mr. Wallis two Oxford Downs, and Mr. J. K. Tombs two. The first and second prizes were awarded to Mr. Tombs, who also won the second prize for the yearling Cotawold. Class 29, rams of any other age: Lord Falmouth exhibited eight Shropshires, and Mr. Wood one; Mr. Wallis two Oxford Downs, to which the first and second prizes were awarded, with eleven entries in this class. Class 30, yearling ewes, four entries and three competitors: The first prize was awarded to Mr. Wood's pen of Shropshires, and the second to Mr. Wallis' Oxford, the other competitor being Mr. Davey, whose pen of Shropshires were reared on land recently reclaimed from waste in Cornwall. The Shropshire and Oxford Downs have increased very much of late years, and stand high in the estimation of the public; why are they not entitled to separate classes and special prizes, as well as the Hampshire Down, Somerset, and Dorset Horn?

In the **SOMERSET AND DORSET HORN**, yearling rams, class 31, Mr. Mayo won the first and second prizes, the only other competitors being Messrs. James and Danger. Class 32, rams of any other age, three entries, viz., Mr. Mayo one, and Mr. Danger two, the former winning the first, and the latter the second prize. Class 33: There was more competition in this class, there being five entries and the same number exhibited; Mr. Mayo again winning first, and Mr. Danger second: the other exhibitor was Mr. James, of Blandford.

With **EXMOOR** and other horned mountain there was very little competition. In Class 34, rams of any age, there were only 4 entries and 3 competitors—Mr. Maunder winning 1st and 2nd prizes, the other competitor being Mr. Quartley. In Class 35, for pens of 5 ewes, 3 entries, the first prize was awarded to Mr. Maunder, the 2nd to Mr. Quartley.

In **DARTMOOR** and other moor, in Class 36, rams of any age, Mr. Drew, of Tavistock, was the only exhibitor, and he was awarded the 1st and 2nd prizes for two Dartmoor rams. In Class 37, pens of 5 ewes, only one entry by Mr. Drew, who was awarded the 1st prize for 5 Dartmoor ewes.

The pigs, although not numerous, were exceedingly good, the Messrs. Elmhurst, Duckering and Sons exhibiting in all the classes and taking most of the prizes. In the large breed, class 49, boars not exceeding two years old, only two entries, Messrs. Duckering and Sons

winning 1st and 2nd prizes. Class 50, boars not exceeding one year old, 5 entries, 8 competitors: Messrs. Duckering and Son won the 1st prize, and Mr. Widdicomb, Berkshire, the 2nd; the other competitor was Mr. King Tombs. Class 51, breeding sows in farrow or with litters: There were ten entries, Messrs. Duckering and Son won the 1st and 2nd prizes, and Mr. King Tombs was commended. Class 52, pen of 2 breeding sows not exceeding nine months old, only three entries: Messrs. Duckering and Sons 1st prize, Mr. Williams, M.P., 2nd, and Mr. King Tombs commended.

In Pigs, of the small breed, Class 53, best boar, above one year and not exceeding two years old, four entries and four competitors, the first prize was awarded to Messrs. Duckering and Sons; the second to Mr. Coles; the other competitors being Lord Radnor and Mr. Davey. In Class 54, boars not exceeding one year old, two entries only: First prize, Messrs. Duckering and Sons; the second, Mr. Davey. In Class 55, best breeding sow, five entries and five competitors, and an exceedingly good Class, the first prize being awarded to Mr. Collier, of Devon; second to Messrs. Duckering and Sons, whilst their other sow was highly-commended; and Mr. Davey and Mr. Coles each receive a commendation. Class 56, for the best pen of two breeding sows, five entries and five competitors: this was also a very good class; Mr. Cornish, of Devon, winning the first prize; Messrs. Duckering and Sons the second; whilst Lord Radnor is highly-commended, and Mr. Davey commended.

The **HORSE** department of the show was by no means good. The Society offers no prizes for thorough-bred stallions, and the horse division of the prize-list has in this and other respects been sadly pared down; moreover the Society's charges operate against a good entry. The Royal Cornwall Agricultural Society had a much better show of horses last year at Launceston than the Bath and West of England could command on this occasion. There were four classes for horses and mares for agricultural purposes, with eight prizes, and yet there were only nine entries, and two of these were disqualified by the judges. The first prize for stallions in Class 38 was awarded to Mr. Laity, of Camborne, Cornwall—a very useful cheesnut bred by himself; and the second to Mr. Brydges Williams for a cheesnut Suffolk stallion. In Class 39, for the best stallion foaled in 1866, there were only two entries, and the judges deemed one not worthy of a prize: the first was awarded to a splendid two-year-old, bred by and the property of Mr. Hitchcock, of Heytesbury, Wilts. In Class 40, for best mare and foal, the judges disqualified both animals for being entered in wrong class, as more adapted for general purposes. In Class 41, for the best filly foaled in 1866, no entry. In the four classes for Hunters there was nothing particularly worthy of note, except Mr. Battams's cheesnut gelding The Don, and his brown gelding Slapton, these winning the first prizes in their classes. In Class 42, best mare or gelding foaled before 1st January, 1864, two entries, Mr. Battams first prize, and Mr. James, St. Mawes, second. In Class 43, best mare or gelding foaled in 1864, four entries, first and second prize Mr. Battams. In Class 44, best mare or gelding foaled in 1865, four entries: first prize to Mr. Michelmores; second, Mr. Carne. In Class 45, best colt or filly foaled in 1867, seven entries: this was a pretty good class; Lord Falmouth receiving first prize, and a high commendation for another; the second to Mr. Laity. In Class 46, for Hacks, best mare or gelding not more than six years old, nor exceeding fifteen hands high, four entries: Mr. Battams winning the first prize, and Mr. Williams, of Pananuworthal, Cornwall, the second. In Class 47, for Ponies, the best mare or gelding, not exceeding



fourteen hands high, two entries, one only shown: the first prize awarded to Mr. Smith, of Bradford Peverill, Dorset. Class 48, the best mare or gelding, not exceeding thirteen hands high, five entries and five competitors: This was a very good class, and excited great interest, the animals being justly much admired, particularly Mr. Gay's white Ermoor, Gem, to which the first prize was awarded; Mr. Collier receiving second, Mr. Michelmores highly-commended, and Mr. Arthur Williams commended. There is no question but that the prize-list for horses requires some radical revision.

The POULTRY SHOW was very good.

Judges: Cattle, Mr. R. Warren, Blandford; Mr. J. Weppell, Exeter; Mr. Savidge, Saraden, Chipping Norton. Long-woolled sheep and large pigs: Mr. Sanday, Holme Pierrepont, Nottingham; Mr. J. Partridge, sen., Hilldown Bow, North Devon. Short-woolled sheep and small pigs; Mr. J. Ford, Rushton, Blandford; Mr. F. Budd, Hatch Warren, Basingstoke. Horses: Mr. H. Thurnall, Royston; Mr. H. Terrell, South Brent, Ivy-bridge, Devon. Poultry: Mr. E. Hewitt, Birmingham.

In point of excellence of articles exhibited, we believe the show to be nearly up to the average; and certainly the display of implements and machines is of much greater extent and practical value than we anticipated would have been the case in view of the extreme distance which exhibitors from the making districts have to bring their exhibits. The number of exhibitors is nearly one hundred; the number of entries, thirteen hundred and thirty-one; exceeding by some four hundred the entries for the Truro show held in 1861. The number of sheds is fifteen, including one 300 feet in length, for the exhibition of machinery in motion; the whole run of shedding extending to two thousand seven hundred and ninety feet.

In going over the stands we shall take them in the order as they present themselves on entering the yard, or rather on turning from the offices. And the first which attracts our notice is the collection of seeds and farm produce of Messrs. Sutton and Sons, of Reading, Berks. The practical and suggestive value of this collection may be gathered from the statement that it is comprised in a shed one hundred feet in length, and that it embraces upwards of one hundred-and-fifty varieties of grasses, about one-half of which are growing, at least have been brought directly down from the experimental beds at Reading, and from being carefully rooted in soil are fresh and vigorous. The collection of seeds is also very valuable, presenting samples of upwards of one thousand varieties. The centre case is part of that very complete one which was exhibited in Paris at the Great Exhibition of last year, and for which was obtained the first prize. We may also take special note of the remarkably fine specimens of mangolds, in fine condition, thoroughly sound. There were Sutton's long red, the large intermediate yellow-globe, and red globe. The garden seeds were well represented. We have above alluded to the specimens of grasses, natural and artificial, exhibited in their growing state; and as these were all or nearly all at their flowering stage, they presented the most practically useful examples which could be obtained. We are glad to see the Messrs. Sutton paying attention to the proper development of this branch of rural economy; for it is one in connection with which there is a wide field for useful operation. The improvement of old and the laying down of new pastures and meadows, is one of the most important branches of agricultural economy, and although much has been done of late in this direction, it is not too much to say that more remains to be done.

The next collection of seeds and farm produce is that of Carter and Sons, High Holborn, London. Here is exhibited a very extensive collection of farm, garden,

and flower seeds; 300 samples of corn seed, also of corn in the ear; and samples of the permanent grasses, for which Messrs. Carter received the prize at the Paris Exhibition of last year.

Next to the Messrs. Carters' stand was that of Mrs. Mary Lyne Pontey, of Plymouth, who exhibited a pretty large collection of farm and garden seeds, specimens of grasses for pastures and meadows, and of roots—as Fisher Hobbs' orange globe mangold, a root of smallish size, but of good shape and quality.

Passing to the centre of the field, in which the implement sheds are placed, and taking them in their order as we proceed towards the sea, we find first the stand of Messrs. Samuelson, of Banbury, the principal feature of which is the number of mowers and reapers exhibited. Amongst these we noticed the reaping machine with self-raking and side-delivery. This machine presents the same features which characterised it at the shows of last year, at which it was exhibited, although several improvements in detail have been introduced. The self-raking movement is very ingenious, being effected by the end of the arm of the rake moving over an eccentric path, the course of which is so arranged as to give the necessary movement to the rake as it sweeps across the delivery platform—which is curved in outline, so as to deliver the swathe at the side—first bringing down the rake from its highest point to gather in the corn to the knives, to sweep more or less horizontally across the platform, and then to rise up clear of the corn after delivery. In the one-horse reaping machine, the delivery is manual, and at the back, being effected by a moveable platform, or rather open rake table, hinged at one side to the machine, and capable of being lifted up by a lever and pedal movement, acted upon by the foot of the attendant who sits upon the machine. The corn is brought up to the knives by a hand-rake. In adapting this machine for cutting clover and seeds, a swathing apparatus is added. By a simple arrangement of lever the cutter-bar and platform are lifted up in turning the machine; and the height to which the cutter-bar is raised from the ground is adjusted by a screw and chain. In the grass-mowing machine there are some points of excellence worthy the attention of the purchaser. Of these we would direct his attention to the simple form of clutch by which the cutters are thrown in and out of gear; and the very effective and ingenious spring movement, worked by the foot of the attendant who rides along with the machine, by which the cutter-bar is adjusted so as to meet the inequalities of the ground over which the machine passes in its working.

The stand next come to is that of Bentall, of Heybridge, Essex, in which is exhibited a small but good collection of the specialties for which Mr. Bentall is so well known, as his chaff-cutters, oilcake-breakers, turnip-cutters, and root-pulpers. This latter class of machinery is constructed upon such correct principles that we do not wonder of its having maintained its high reputation during a now considerable course of years. We believe we were the first in the columns of the present Journal to give a detailed description of the movements of this machine, and the position it has since taken and maintained have justified the high opinion we then formed of and expressed about it.

One of the most extensive, if not the most extensive, collection of machines exhibited by makers from a distance, is that on the stand of Pickley and Sims, of Leigh, Manchester, and which comprises examples in various sizes of his chaff-cutters, oilcake-breakers, root-cutters, and pulpers, with lawn-mowers, and horse-rakes. The horse-rake is made with a straight shaft, through from side to side; and the lifting movement is simple, and easily worked. A novelty is exhibited in the form of a new reaping machine, the



pincipal feature of which is the construction of the knife; the finger-bar has the fingers screwed on at the receiving intervals, and steel blocks are fitted in behind these. The whole of the upper surface presented by these blocks and the end of the fingers is perfectly flat, with sharp edges at the sides of the fingers; and being made of cast-steel of the finest quality, the lower surface of the cutters or knives work against it, and thus tend to keep the cutting edges continually sharp. The form of the fingers also prevents choking.

In the next stand, Brenton, of Polbathic, St. Germans, Cornwall, exhibited his patent cylinder reaping machine. This has a side delivery, the platform being curved; but it is terminated by an obliquely out end, against which a roller or cylinder revolves; this is conical, the smallest end being nearest the working gear, the longest at the furthest end of the delivery platform. The patentee claims for this arrangement a strengthening of the machine, and a regular sheaf delivery of the corn. The travelling or bearing wheel are of considerable diameter, and the gearing is simple in character. A reaping machine is also exhibited with back delivery, the rake platform being worked by the foot of the attendant.

The stand next arrived at in our ramble through the sheds is that of Messrs. Howard, of Bedford, who have a very large collection of their well-known implements and machines. Amongst these we particularly noticed their mowing and reaping machines, in both of which very considerable improvements have been effected since their last public appearance at Smithfield Show in Christmas of 1867. The same remark applies also to their boiler, which, we are glad to know, is rapidly assuming a high position in this important department of steam appliances. We are, however, not by any means surprised at this, for from the very first practical examination we made of it, and the results of which we gave in a special report upon it in the pages of this Journal, we saw in it so many features of excellence that we had no hesitation in claiming for it a high position amongst modern and recent inventions. We look upon this as forming the most important improvement of recent times in boiler-construction; and it is just because we have for so long been impressed with the high importance of this department that we so strongly express ourselves in relation to it. A few remarks as to the improvements recently made by the Messrs. Howard will not be out of place here, and first as to the reaping machine. The first peculiarity which strikes one on examining this machine is the two driving-wheels with which it is provided. We believe this to be a sound mechanical arrangement, inasmuch as it not only ensures thorough general steadiness of action, but it tends to keep the knives in full action in nearly all positions in which the machine is placed. It also gets rid of the necessity for having a side draught, the draught-pole being placed in the best position to secure a direct, and a consequent lightness of draught; and, further, the balance of the whole is so perfect as to keep all weight which might otherwise arise from oppressing the horses. This arrangement also permits of a form of framework which is well calculated to secure several advantages. The cutter-bar is winged or jointed to the side of it, and it thus can readily accommodate itself to the inequalities of the ground, and the whole of the framework can be very readily freed from the platform and rake in passing through gates, or on being stored up in the implement shed. The points connected with the cutter-bar now come under notice. This is placed behind the driving-wheels, which position enables it to pass easily over obstructions, and the bar is provided with a raised projection upon which the knife works to and fro; this raised part allows the dirt and soil to fall freely away from the cutting parts. The fingers have a clear space between them, which is advantageous


in low cutting. The driving-gear for the cutter-bar is well arranged; the crank is brought down low, to admit of its working in almost a direct line with the cutter-bar, and a combination of bevel with spur gear is used to drive the cutter, the first slow motion being taken off the main driving wheel by means of bevel wheels, the second rapid motion being taken off by spur-wheel gear, the employment of which by the way affords facilities for quickly changing the speed of the knife, this being done by simply altering the spur wheel. The self-acting gathering rake is drawn by special apparatus, thus being independent of the driving gear for the cutters. The gathering arms revolve in an inner cam, which has its curves very abrupt, changing from a very low to a very high line. The blades are brought down as low as the points of the rakes, and bring in the corn to the action of the knives. Having performed this, the gatherers rise very suddenly, so as to be kept perfectly clear of the grain, and the rake is next brought into action, and sweeps the grain off the platform in sheaf, the size of which can easily be regulated by altering the gearing of the gathering apparatus. The mowing machine is very similar as respects its driving gear to the reaper just described; of course, a higher speed of knife or cutter-bar is provided for. The fingers are raised or lowered according to the nature of the ground by means of a lever, another being provided by which the cutter-bar can be raised in passing over mole-hills or other obstructions. The cutter-bar is put in and out of action by a lever worked by the foot of the workman. A description of the boiler has already appeared in our columns.

The next stand is occupied by Messrs. Kearsley, of Ripon, Yorkshire, who exhibit their mowers and reapers. They exhibit a novelty, recently patented, in a new mode of attaching the end of the connecting-rod which works the cutter bar to the crank wheel, and the object of which is to prevent, by any extra pressure which may come upon the cutter bar, the jamming up the knife eye or crank-pin. This is effected by a very ingenious and simple modification of the ball joint. The crank-pin, which is hollow, passes through the centre and is fixed to the ball joint, the spherical or partly-spherical surface of which plays in a corresponding hollow or cup turned in the face of the wheel to which the crank-pin is connected; and the whole are secured together by a washer, bolt, and nut. Any undue pressure which tends to throw the connecting-rod out of the direct line is got rid of by the crank-pin giving and taking, the ball joint moving in its cup or socket, admitting of a lateral play more or less, according to the pressure brought upon the connecting-rod. The crank is made hollow, and a diagonal slot, cut in it admits of the oil, with which the hollow of the pin is filled from time to time, being passed to the moveable joint, which is thus kept well lubricated. A supply of oil can be conveyed by the hollow crank-pin equal to several hours' working—five or six.

L. L. Larksworthy and Co., Lowmoor Iron Works, Worcester, exhibit various articles, as ploughs and harrows; and Messrs. Garton and King, of Exeter, their cooking stoves and seats. The same firm have also stalls, and a loose box fitted up with their improved fittings, in connection with which there are exhibited a good many stable appliances.

Going up the field we come to the stand of Colthurst, Symons, and Co., of the Patent Tile Works, Bridgewater, who exhibit a goodly collection of tiles, pavements, and amongst the former specimens of Beadon's patent Gothic tile, an excellent and cheap contrivance for forming eaves gutters, and to which we have on other occasions specially referred. Passing the Arts Department, and following the course of the field, we take the row of sheds next the sea, and work our way back again to the

entrance, at which point we began our labours. In this arrangement of our work, the stand we first come to is that of Parkham, Northgate Street Iron Works, Bath, who exhibits a good collection of hurdles and gates. And, by the way, referring to gates, we may remark that in many cases a remarkable overlooking of the principles upon which they should be constructed is to be found in many gates exhibited at our shows. The subject is one of importance, and will bear investigation in a special paper, which we purpose shortly devoting to it.

The stands next in order contain exhibits, the majority of which, not being specially connected with agriculture—at least not requiring much special description—may be noted in one paragraph. The exhibits are Beach's (Dudley, Worcestershire) cattle-food; Hepburn's (Long-lane, Southwark, London) leather belting; Gliddon's (Wilton, Taunton) prize ranges, who also exhibits a screw-driver water-tap, showing considerable ingenuity in the means by which leakage is prevented, this being effected by a double screw and flat washer-valve; G. Dodge's (London) vulcanized India-rubber driving bands, tubing, and waterproof sheeting; Cook (Redruth, Cornwall), dog-carts; the Bovey-Tracey (Newton Abbott) Pottery Company, fire-brick and tiles; Bullay (Station-road, Plymouth), miniature brougham; Terrill (Redruth, Cornwall), cooking range; T. Pethick (Tamerton Folliott, Plymouth), farm carts; Hardon (Albert Works, Strange-ways, Manchester), royal patent feeding cake; Richard Cragge Silvester (16, St. James's-walk, Clerkenwell, London), American inventions, &c., a knife sharpener, a nose-ring for cattle, and a weighing-scale; Baker (Compton, Newbury, Berkshire), liquid manure carts, and pump; Day, Son, and Hewitt (22, Dorset-street, Baker-street, London), medicine-chests, gaseous fluid, &c. Bradford—the ubiquitous Bradford—of Cathedral Steps, Manchester, turns up here, as at every show, with his washing-machines, which, as Josh Billings would say, "are, in course, poorly agyerkateryil mashins," which have fantastic designations as "Vowel" machines; why so-called we cannot say. But he has here something specially agricultural, and which deserves more than a passing notice: it is a churn, which, as usual with this indefatigable inventor, he designates fantastically, and it therefore figures as the "C.C.C." churn. Whether there is a hidden or occult pun in this, we know not; but the sound, at all events, conveys a hint to look at it. And really it is worthy of being looked at, as it possesses considerable claims to being what seems all the rage at present, an aerating or atmospheric churn. The principal feature lies in the form of the dasher, or rather plough, for the milk is acted upon by the reciprocatory motion, like the old-fashioned plunge-churn, which is square or rectangular in form. Its extremities or side-wings, as we may call them, are simply hollow boxes, the outer sides of which are quite open, although the upper part or lid and the sides and ends are closed. These boxes do not stretch right across the whole of the plunger, but are stopped short, leaving a space between them. This space is filled up with square bars set diamond form, thus . The plunger thus constructed is provided with two cross-bars, to the centre of which one end of an upright lever is jointed, the upper end of which is jointed to a horizontal cross lever placed some distance above the top of the churns, and one end of which is grasped by the operator, the other end being jointed to a vertical support at the back. The operation is as follows: The box in which the plunger is placed is filled to a certain height with the milk or cream to be operated upon, and the plunger lifted sharply up, till the lower edge of the side-wings or boxes of the plunger are a little above the surface of the milk or cream, the air then passes into and fills the spaces of the boxes, when the plunger

is forced down into the liquid, and the air is passed through it, and up between the churn and set bars, the shape and position of which cause a variety of contrary currents, which agitate the liquid. Whatever other result is obtained, that of passing a large body of air through the liquid is certainly obtained: a very short working of the churn suffices to show that. We believe trials have shown its value in practice, and certainly nothing can be fairer than the terms upon which the inventor offers it to the public, for he gives intending purchasers a month's trial of it, and if that does not satisfy them, he takes back the churn. Our description is complete when we give the poetical quotation with which the inventor heads his prospectus, and which is applicable to more things than to churns:—

"The current that with gentle murmur glides,  
Thou knowest, being stopped, impatiently doth rage."

Shakespeare, from whom this is taken, has been called a "universal-minded man;" it must be so, else he could not thus have been pressed into the service of agricultural implement makers, to, slightly altering the quotation, "point their prospectus, and adorn their tale."

The attendance during the two first days, Monday and Tuesday, both of which have been half-crown days, has not by any means been great; but we believe the pecuniary result has satisfied the Society—at least such is what common report says, if that is trustworthy. On Monday 659 paid for admission, 1,800 yesterday, but the number admitted to-day (Wednesday) must reach some thousands, for already, at the early hour we write this, crowds are pouring in from all quarters. The weather is beautiful, and the attraction outside the show as well as inside cannot fail to bring a large concourse of people. If, in addition, to the money they bring to the Society, they bring also business to the exhibitors—which up till to-day has been exceedingly dull—all concerned will have no reason to complain.

On Tuesday forenoon, about eleven o'clock, the trials of mowing machines was begun on a field of rye grass, in the immediate neighbourhood of the show-yard. The trials excited great interest, and were attended by a considerable number of visitors to the show. The Bath and West of England Society have for some years given up the prize system, and that trials such as were carried out on Tuesday and Wednesday were not trials in the ordinary sense of the term, as involving any competition for prizes or other marks of merit. The Society takes no cognizance of them, but simply affords facilities for carrying them out, and takes the general management of them such as they are; leaving the public who witness them to be the best judges of the results. It is, to say the least of this arrangement, open to discussion as to whether it is a wise policy on the part of the Society; whether, indeed, it is not an ignoring of one of the duties of an agricultural society—namely, that which imposes upon it the task of ascertaining for its members what are the inventions and appliances which are likely to be useful to them in their practice. Those are not few in number nor unimportant in influence who maintain that this is one of the duties, possibly the most important, which an agricultural society has to perform; and, if so, it is difficult to see why this Society has foregone its performance. We cannot but think the decision of the Bath and West of England Society an unfortunate one. The prize system has unmistakably done much good, and is still capable of doing good; and there is one commentary very striking, to be met with in the show-yard itself, upon the decision of the Society, with reference to the doing away with the prize system in connection with the implements and machines. A walk through the stock and poultry departments will show on every side tickets

blazing forth "First prize," "Second prize," "Third prize," and so on. How is this? Is the prize system so good for one department that it is followed out; so bad for another that there it is condemned, and thrust aside as worthless, if not worse? We do not lose sight of the fact that there are conditions affecting the stock prize system which do not affect—at least in the same degree—the prize system connected with implements and machines; nevertheless, to many it does seem an anomaly that prizes should be given in one and not in another department. It is scarcely the place—certainly not the place to do the subject justice—to take up the discussion of this question at the end of a long article. Meanwhile, we feel that we should not have been doing either our readers or ourselves justice had we not alluded to it, and very clearly given our opinion upon it. We now conclude by giving the list of those who tried their machines on Tuesday. The numbers refer to the numbers of the plots which the different competitors—if the term is allowable when nothing was competed for—drew for the choice of plots. (5) Walter A. Wood, (1) Samuelson and Company, (4) Brenton, (7) Reading Iron Company, (2) Hornsby and Sons, (9) Burgess and Key, (10) Beverley Iron and Waggon Company, (6) Pickles, Sims, and Co., (8) Howard of Bedford, (8) Kearsley, (11) Bamletts. The trials excited great interest, and a slight shower before and after and during the trial made the grass in capital order for working. As a rule, the work done by all the machines was excellent, although to some the usual mishaps occurred, which prevented them from displaying their full powers. It would be invidious under the circumstances to enter into a detailed account of the work done by the various machines: that will be probably done when more leisure awaits us. On Wednesday the reaper trials were being carried on in a field of rye some distance from the Show-yard. The crop is in excellent condition for displaying to advantage the capabilities of the different machines entered for trial, the principal entries being made by Burgess and Key, Howard, Wood, Brenton, Kearsley.

### THE IMPLEMENT STANDS.

**HOLMES and SON, Norwich.**—Seven-horse power portable steam-engine; combined prize portable finishing thrashing machine; improved circular-saw table; eight, ten, and fourteen-row corn and small occupation drills; four-row and economical West of England seed and manure drills; broadcast corn and seed-sowing machine; single and two-row turnip and mangel drills; and corn-dressing machines.

**TASKER and SONS, Andover.**—Six-horse power portable single cylinder steam-engine; single-blast patent combined portable thrashing machine; screw-lifting jack; corn-dressing machines; oilcake breakers; and circular-saw tables.

**CLAYTON, SHUTTLEWORTH, and Co., Lincoln.**—Five and six-horse power single cylinder portable steam-engines; single and double-blast combined thrashing and finishing machines; and patent combined two-row revolving liquid manure and drop drill for turnip and other seeds.

**POWIS and Co., Millwall.**—Improved mortising, tenoning, and boring machine; improved endless band sawing machine; the "Joiner Universal" sawing machine; improved three-cutter moulding machine; improved self-acting circular saw-bench; and a portable steam-engine to drive the foregoing machinery.

**THE READING IRON WORKS (LIMITED), Reading.**—Three-horse power portable steam-engine; two patent "clipper" mowing machines; improved lever horse rakes; gorse-bruising machine; improved chaff-cutters for hand and horse power; oilcake mill; grass seed broadcast sowing machine; and forty-two inch combined portable thrashing machine.

**BROWN and MAY, Devizes.**—Eight-horse power patent portable steam-engine; and four-feet six-inch combined finishing thrashing machine.

**MARSHALL, SONS, and Co., Gainsborough.**—Five and eight-horse power portable steam-engines; combined thrashing and finishing machines; and improved circular-saw benches.

**PLENTY and SON, Newbury.**—A patent engine and boiler yachts, launches, and other boats.

**HAWKEN and CLEMOW, St. Iseey and St. Merry, Cornwall.**—Ten-horse power double-cylinder portable steam-engine; eight-horse power single-cylinder portable steam-engine; combined portable double-blast finishing thrashing machine; improved circular-saw bench (new implement), with cast-iron frame and planed table; improved chaff-cutting machine; (new article), set of steadying blocks; combined reaper and mower; self-raking, "Eclipse," and governor self-raking reapers; improved horse-gear; turnip-cutters; an assortment of "Excelsior" turnwrest and other ploughs; an iron plough (new implement), made with wrought-iron centre-piece introduced in the beam, and wrought-iron frame; collections of hay and dung forks; leather machine bands, and vulcanized india rubber bands; patent flexible or chain harrows; and collection of oil feeders, &c.

**THE BEVERLEY IRON and WAGGON COMPANY, Beverley.**—Two-horse grass mowing machine; one and two-horse reaping machine, with manual and double self-acting swathe delivery; three pairs of patent cart wheels, with axles, to carry 20, 25, and 30 cwt.; Newcastle prize or one-horse model cart; self-cleansing clod crusher and roller; and a pair of cast-iron wheels for clod crusher or roller.

**RUSTON, PROCTOR, and Co.**—Five and six-horse power portable steam engines; single and double blast thrashing, finishing, and dressing machines; and improved circular-saw bench with planed metal table.

**HUMPHRIES, Pershore.**—Six-horse power portable steam engine; combined thrashing and finishing machine; and pair of two-and-a-half inch cider press screws.

**HORNSBY and SONS, Grantham.**—Six-horse power portable steam engine, with contracted steam chamber; four-feet combined thrashing, shaking, and finishing dressing machine; "Governor," "Premier," and "Plymouth" self-raking and one-horse back-delivery reaping machines; patent "Paragon" mowers, and "Plymouth" and "Paragon" combined mowers and reapers; an assortment of light and strong two-horse iron ploughs; root-pulpers; patent washing machine with wringer and metal screw; improved patent mangle with brass-capped sycamore rollers; patent 10½-inch forked leg wringer, with metal screw; and ten-row corn and seed drill.

**GARRETT and SONS, Saxmundham.**—Four and six-horse power portable steam engines; combined thrashing and finishing dressing machines; patent straw elevator; ten and eleven-row Suffolk corn drills; West of England and other pattern corn and seed drills; two sizes of Chambers' patent artificial manure distributor; improved horse hoes; corn dressing machines; and patent rick and corn ventilators.

**SUTTON and SONS, Reading.**—Collection of one hundred specimens of dried grass, plants, and samples of grass seeds; complete assortment of the principal kinds of agricultural, horticultural, and floricultural seeds; collection of agricultural roots; and growing samples of various kinds of seeds in pots.

**BEALE (CARTER and Co.), London.**—Samples and specimens of natural grasses for permanent pasture; wheats, barleys, oats, mangel, turnip, and other agricultural produce.

**PONTREY, Cornwall.**—Collections of approved kinds of seed, grasses, and field roots, including mangolds and turnips.

**SAMUELSON and Co., Banbury.**—Self-raking and one and two-horse "Eclipse" reaping machines; two-horse grass mowers; combined mower and reaper; and fourteen, nineteen, and thirty-inch lawn mowers.

**BENTALL, Maldon.**—Five specimens of patent chaff cutters, of various power, for hand and horse working; improved disc root pulpers; Gardner's turnip cutters; and improved oilcake mills.

**ROBERTS and SONS, Bridgewater.**—The patent "Economist" carriage; waggonettes; park phaetons; Malvera, Whitechapel, and other dog carts; a gadabout Dennet gig; and miscellaneous lot of single and double harness.

**PICKSLEY, SIMS, and Co., Leigh.**—Variety of different size chaff cutters for hand and horse power; steel grinding mills; oat and bean mills; smooth roller crushing mills; single and combined turnip pulpers, slicers, and strippers; Gardner's single action turnip cutter; new pattern oilcake

mill; eleven, thirteen, fourteen, and nineteen-inch lawn mowers; single and double cylinder garden rollers; an assortment of combined wood and iron garden pic-nic chairs, of various sizes and patterns; American and improved horse rakes; case of American hay and manure forks; twelve pig troughs, assorted sizes; two-horse mowing machines; two-horse combined reaper and mower; and one-horse "Champion" reaper.

GOSS and SOX, Plymouth.—Specimens of brass and steel letters for marking and branding purposes; and ornaments, coats of arms, and trade marks for all kinds of metal, wood, &c.

BRENTON, St. Germans, Cornwall.—One and two-horse patent cylinder reaping machines; two two-horse "Nonpareil" mowing machines; three-row turnip and mangold drill; combined blowing and dressing machine; broadcast corn and seed machine; improved registered sheep rack mounted on iron wheels; set of tubular iron whippetrees; samples of machine driving bands; and bundle of hay and manure forks.

HOWARD, J. AND F., Bedford.—An assortment of iron one and two-wheel iron ploughs for every variety of soil and work, with subsoil, ridging, and digging-bodies for attachment; improved potato-raising plough, with two wheels and double raisers; improved plough sledge, dynamometer or draught gauge, sets of patent flexible chain and beam iron harrows, improved wrought-iron harrow carriage, sets of trussed whippetrees, patent horse rakes, three sizes patent double-action hay-making machines, new patent improved two-horse mowing machine, one and two-horse manual and self-delivery reaping machines, and new patent safety steam boiler and super-heater of ten-horse power.

KEARALEY, H. AND G., Ripon.—Two-horse grass mowing machine, two-horse combined mower and reaper, one and two horse reaping machines, and a meadow mower.

LARKWORTHY AND CO., Worcester.—Three sizes patent "Excelsior" iron ploughs; various sets of "Excelsior" iron scuffles, drag and beam harrows; sets of "Excelsior" steel plough and equalizing whippetrees, and a wrought-iron cattle crib.

GARTON AND KING, Exeter.—An assortment of cottage, domestic, farmhouse, and pedestal cooking stoves, ranges, grates, and heaters; variety of useful and highly-ornamental combined wood and iron garden seats and tables; set of cast-iron work for loose box, porcelain manger and drinking trough; sets of cast-iron stall divisions and stable fittings; cast-iron galvanized hay-racks and corner mangers; single and double harness fittings, and general stable necessities and utensils; wrought-iron gates with posts and stays, wrought-iron hurdles, continuous cattle chain fence and galvanized strained wire; wrought-iron cylindrical boiler, and cast-iron crescent boiler.

BORT, Bury St. Edmund's.—Five patent double-action hay-makers, fitted with wood or iron travelling wheels; patent corn screens, with blowers and removable wire beds; improved patent barley screen, improved corn-dressing machine and screen combined, improved malt screen, barley and malt hummellers; patent self-acting horse-rakes, with seat for driver; and patent oval-beam iron and wood-beam ploughs.

TUCK AND SON, Bath.—Patent and improved Hornblotten and Chantry stiles, in oak and iron; lengths of five-wired, continuous, and tubular cattle fencing, with straining pillars; specimens of wrought-iron field and garden gates, hurdles, and verandahs in different panels; selection of garden seats, chairs, tables, watering engines, and wheelbarrows; models of cast and wrought iron boilers; model of arrangement for heating churches or public buildings; and model of gasworks for mansions, factories, collieries, &c.

WHITE, London.—Specimens of the patent S. L. V. oil-feeders, save-all, pyramid oil-cans, needle lubricators, artificial dams, stable and barn lamps and lanterns, and thatch fasteners; and samples of leather driving bands, straps, lashing laces, and thongs.

MUSGRAVE BROTHERS, Belfast.—Four full-sized horse-stalls, with patent fittings; a variety of fittings and stable furniture, racks, mangers, &c.; patent iron cowhouse fittings, dog kennels, and piggeries; patent harness-room, slow combustion, and conservatory stoves; and an assortment of stable utensils and necessities.

PLIMSAUL BROTHERS, Plymouth.—Improved one-way and other ploughs; turnip hoes; flexible, chain, and Bedford harrows; improved American tubular, iron, hand and horse rakes; patent self-raking and one-horse "Eclipse" reaping machines; combined reaping and mowing machine; double and single

action hay turners; chaffcutters of various power; improved turnip pulpers, strippers, and slicers; Gardner's single and double action turnip-cutters; improved oat, bean, corn, seed, and malt crushers; two and three row turnip and mangold drills; corn dressing and blowing machines; an assortment of liquid manure barrows, pumps, and garden rollers; washing, wringing, and mangling machines; garden chairs, engines, flower-stands, &c.; selection of spades, scythes, and forks; an assortment of lawn mowers and rolling machines; galvanized iron cattle, pig, dog, and poultry troughs; American cottage and domestic cooking stoves and ranges; a variety of gas-burner stoves, with flexible tubing; a variety of cooking pots and domestic utensils; Milner's patent fireproof boxes and safes; stable fittings and furniture; corn measures, weighing machines, garden tools, knife-cleaning machines, and cask of sheep wash.

CARSON AND TOONE, Warminster.—An assortment of chaff-cutting engines for hand, horse, or steam power; Moody's patent turnip-cutters, on iron frames; oilcake crushers; single and double cheese-presses, on iron and wood stools; and an assortment of wrought-iron horse-hoes, with three steel hoes and five tines.

BAKER, Wisbeach.—Improved combined blowing and dressing machines, and combined corn-dressing machines with one hopper.

THE CANADIAN WASHING-MACHINE AND AGRICULTURAL IMPLEMENT COMPANY, Worcester.—Patent Canadian washing-machines, with wood and iron frames; two sizes of compound lever mangles; patent combined washing, wringing, and mangling machine; India-rubber wringers; patent clothes-horse and dryer; and sets of improved diagonal-shaped three and four-beam harrows.

SARA, Penryn, Cornwall.—Twelve-horse power horizontal steam-engine; pair of 12-horse power vertical engines, with reversing motion; 2-horse power small donkey engine and boiler; steam-ram for forcing water; sets of three chaff-cutters; and set of four ploughs.

NICHOLSON, Newark-on-Trent.—Three haymaking machines, with single and combined motion; (new implement), high-wheeled horse-rake, of great height, and constructed to carry large loads; 24-inch garden roller, with double cylinders; patent cake crusher; registered bottle racks to hold six and twelve dozen; sack-lifting machines; malt and corn shovels; and Baker's patent anti-incrustator.

BLANSOMES AND SIMS, Ipswich.—An assortment of iron beam two wheel, moulding, ridging, turn-wrest, or one-way ploughs, for every variety of soil; ridging, subsoil, potato, and digging bodies; sets of trussed iron whippetrees and pomel-trees; improved horse-rake; set of three patent-jointed harrows; bean-cutter; oat and combined mills; oilcake breakers; Gardner's turnip-cutters; root-pulper, for hand power; and four "automaton" lawn-mowers.

BURGESS AND KEY, London.—Reaping and mowing machines, and combined reaper and mower.

BUCKINGHAM, Llannecon.—Champion butterfly ploughs; seven-tined cultivator; (new article), a cultivator with nine tines, for large occupations, to cover six feet of land; and an improved horse-hoe.

DENING AND CO. (late Wightman and Denning), Chard, Somerset.—Haymaking machines; horse-rake; cheese-press; apple mill and corn-bruiser; three sizes of horse-gear; iron ploughs for light and heavy land; root-grater; and horse-hoe.

WILCOCKS, Bath.—Three, four, five, and six-motion beer-engines, with fittings complete; gas-cooking stoves; bottling machine, for soda-water manufacturers; soda-water cylinder or condenser; atmospheric kettle-boilers and kettles; two and three-light chandeliers; harp lamp; and set of pewter wine measures.

EASTWOOD, Blackburn.—An assortment of patent compound-action churns, in sizes to churn from one to eight gallons.

BAMLETT, Thirsk.—Two-horse grass mower, and one-horse reaper.

THE BRISTOL WAGGON COMPANY, Bristol.—Light crank-axle, improved farm, and pony or errand carts; Wood's one and two-horse mowing and reaping machines, and combined mowing and reaping machine; three sizes of American horse-rake; patent steel-tooth hay-collectors; grass seed distributor;

five and six-row corn-drills; patent and improved sheep-rakes; and improved road-scraper.

LE BURR, Bury St. Edmund's.—Four patent "Champion" double-action haymaking machines; (new implement), registered self-acting hand seed drill, for producing greater regularity in sowing seed; an assortment of mower or reaper-knife rears; everlasting malt-screens; and (new article), specimens of the Abercorn chair, which by a simple movement is instantaneously converted into a pair of useful steps.

PARNELL AND SON, Exeter.—A variety of gig and other harness, saddles, bridles, snaffles, Martingales, &c.; whips, canes, sticks, and whiplashers; rick-cloths, winnowing-sheets, and carriage-wrappers; and a collection of three, four, and five-bushel sacks.

HARDING, Wincanton.—Harding's genuine horse food, in casks, canisters, and packets.

FENNEY AND CO., Lincoln.—Patent adjustable corn-screens and separators; sack-lifters; improved registered gravel, sand, coal, and malt screens; rolls of galvanized game and poultry-netting; and six galvanized wire meat safes.

HAWKES, SPENCER, AND CO., Tiverton.—Eight, nine, eleven, thirteen, and fifteen-row patent chain corn drills; three-row turnip, mangold, and manure drill; single and double-action turnip cutters; patent self-acting horse-rakes; hay machine; reaping machines; patent fire-bars; and washing machines.

CARSON AND CO., London.—Samples and patterns of the original anti-corrosion paint; samples of varnishes, raw and boiled linseed oils, turpentine, and paints; and an assortment of improved brushes and materials for painting purposes.

COLMAN AND MORTON, Chelmsford.—Variety of patent cultivators, with five and seven tines; improved one-horse gear; water or liquid-manure cart; patent adjustable rotary corn screen; new patent oilcake cutters for hand or steam power; and samples of shares, &c., for Colman's cultivators.

REEVES, R. AND J., Westbury.—Two, three, and four-row liquid manure and economical seed-drills; eleven-coulter small-occupation corn-drill; patent broadcast manure distributor; and improved portable barrow-pump.

PAGE AND CO., Bedford.—Improved draining pipe and tile machine; patent horse, hay, corn, and stubble rakes; one and two-horse wrought-iron ploughs; sets of diagonal iron harrows; improved one-row combined expanding and universal steerable horse-hoes; and improved linseed-cake mills.

CAMBRIDGE AND CO., Bristol.—Improved Cambridge roller and clod crushers; patent notched-wheel rollers and clod-crushers; sets of three and four-beam combined tine and chain harrows; three-wheel land-presser; one and two-horse gear; twenty-three and twenty-six teeth horse-rakes; and Gardner's single and double-action turnip cutters.

WOODS, COCKSEDEGE, AND WARNER, Stowmarket.—One, two, and four-horse power vertical steam-engines, complete; universal grinding and crushing mills, for oats, beans, barley, linseed, malt, wheat, peas, maize, &c.; Gardner's single and double-action patent turnip-cutters; improved root pulpers and graters; improved horse-works, with separate intermediate motion; portable corn-grinding mills, with twenty and thirty-six inch French burr stones; improved oilcake breakers, patent perfect hog-troughs, one-horse carts, to carry thirty ewts., and Woods' one and two-horse mowers and reapers.

WOOD, W. A. (CRANSTON), London.—One and two-horse Wood's Royal grass-mowing machines, with and without reaping attachment; Wood's Royal one-horse reaping machine; and Nova Scotia grindstone, for sharpening reaper and mower knives.

WILLIAMS AND CO., Falmouth.—Miniature waggonette to carry four persons, two and four-wheeled dog-carts, and harvest waggon.

CROGGON AND CO., London.—Variety of galvanized iron pails, turnip skips, bowls, and basins; rolls of asphalt, in-odorous, ship-sheathing, and dry hair non-conducting felts; models of sheds and galvanized iron church; samples of Kamptulicon floorcloth and stall planking; two garden engines; galvanized iron cistern, gas stoves; samples of perforated iron and zinc asphalt blocks, shovels, spades, and forks; and rolls of strand wire fencing.

ROLLINS, London.—A large assortment of patent American domestic, well, suction, and force pumps, of various power; patent American aquarius and hydraulic ram; bundles of American hay and manure forks; Nova Scotia grindstone and

India pond extra scythe stones; improved American wheel horse-rakes; variety of small American implements for farm and household use; set of American thermometer charts; and assortment of Shaler and Fairbank's weighing machines, weights, scoops, &c.

ASH, Penzance.—Two and four-wheel dog-carts and park phaetons.

BEARE, Newton Abbot.—Three and five-horse power portable thrashing machines; three and five-horse power portable gear; three-row turnip and mangold drill; winnowing machine, patent "Eclipse" reaping machine, combined reaper and mower; and Riche's and Waits' patent "Eureka" grist mills.

RICHMOND AND CHANDLER, Balford.—Assortment of chaff-cutters of various size and cut, to work with hand, horse, or steam power; corn crushers; one, two, and four-horse gear; root washers, turnip cutters, steaming apparatus, sackholders, and bread-kneading machines.

TIPPER, Birmingham.—Cattle medicines; Tipper's medicated mystery, for cows, calves, sheep, pigs, poultry, and dogs; and sheep-dipping apparatus for scab, tick, and fly.

INLEFF, Ladbroke, Cornwall.—Variety of cemetery memorial stones, pillars, and crosses.

MITCHELL AND BURGESS, Manchester.—Emery composition grinding machines and files for ordinary and reaper knife sharpening, and portable stand for holding reaper knife bar while being sharpened.

MOUL'S PATENT EARTH CLOSET CO., London.—Specimens of the patent earth commode, with pull-up and self-action, made of various woods; patent dustless earth and cinder sifter, patent earth urinal, sets of self-acting and pull-up apparatuses, drying stove for drying earth, and galvanized iron tanks for earth closets.

DAYE, Croft-hole, Cornwall.—Excellent turn-wrest ploughs, with steel breast, skid coulter, and parallel self-acting wheels; portable horse rake, and set of tubular whippetrees.

DAY, SON, AND HEWITT, London.—Stock-breeders' complete medicine chest, containing "Guide" and large assortment of cattle and sheep medicines and compounds; chests of chemical extracts, gaseous fluid, red drench or inflammation powders, red paste or condition balls, for the cure of the various complaints and diseases incidental to horses, cattle, sheep, &c.; the aluminates of zinc and sulphuretted extract ointments; and four pamphlets—"Key to Farriery" (two editions), "Prize Essay on the Rearing of Calves," and "The Breeding and Management of Sheep."

BAKER, Newbury.—Liquid manure or water cart, on 4-inch wood wheels; liquid manure distributor; pump, with 12 feet of suction hose attached; and 130-gallon liquid manure cart, with distributor attached.

SILVESTER, London.—Patent American scales, improved American blade sharpener, and patent noose ring for leading cattle.

HARDON, Manchester.—Samples of royal patent cake, and original condimental food for feeding and health restoring.

FETHICK, Plymouth.—Two-horse farm carts for general purposes.

TERRELL, Redruth.—Six sizes of improved cooking apparatus, fitted with every requisite for domestic use, and made of various measurement.

JONES, Gloucester.—Composition for waterproofing, softening, and preserving leather; and Gloucestershire specific for foot-rot in sheep.

PARHAM, Bath.—Assortment of iron, tubular, and ornamental field, garden, and wicket gates and pillars; rolls of continuous galvanized wire fencing for cattle, sheep, dogs, poultry, &c.; ornamental hurdles, with trellis and chain tops; strong wrought-iron cattle crib; various garden seats; and specimens of verandahs.

HEPBURN AND SONS, London.—Lengths of stout double and single leather belting, mill-band strapping, and driving bands of various weight, length, and width; lengths of leather pipe and suction hose; leather fire buckets, strap screws and fasteners, and hydraulic leathers; and canvas hose for fire engines and liquid manure carts, tanks, &c.

BEACH, Dudley.—Beach's farinaceous food for cattle, sheep, and pigs; condiment for horses; and superfine flour.

GLIDDON, Taunton.—Open fire kitchen range or cooking apparatus; steaming apparatus for domestic use; "People's" cooking range, and "Vesta" cottage range; suspension roast-

ing apparatus, fitted with tin screen; enamelled iron bath, complete; and (new) screw-down tap, for all kinds of spirituous and malt liquors.

**DODGE, London.**—Rolls of india-rubber and vulcanised machine-bands of various length, width, weight, and substance; vulcanised india-rubber hose and tubing for fire-engines, breweries, manufactories, &c.; assortment of useful india-rubber articles for domestic and other purposes; india-rubber waterproof covers and sheeting; ditching and malting-boots, driving-aprons, capes, coats, &c., and gutta-percha driving-bands.

**COOK, Redruth.**—Two-wheeled Malvern dog-cart, and four-wheeled phaeton.

**THE BOVEY TRACEY POTTERY COMPANY, Bovey Tracey.**—Fire and architectural brick goods in great variety, for all purposes.

**BULLEY, Plymouth.**—Miniature brougham, Victoria barouche phaeton, and skeleton-body park phaeton.

**MAJOR, Bridgwater.**—Model roof, exhibiting various kinds of roofing and other tiles.

**BROWNE AND CO., Bridgwater.**—Variety of plain and moulded bricks, tiles, and pottery.

**SKETCHLEY, Weymouth.**—Six-horse power portable engine, universal joiner, batting sawing machine, and mortising machine.

### THE ANNUAL MEETING

Of the members was held in the council tent at 12 o'clock on the Wednesday, Sir John Duckworth, Bart., the President, in the chair.

The SECRETARY (Mr. Goodwin) read the following Report: "The Council have the gratification to announce that, notwithstanding the decease of several valuable members, prominently among whom must be mentioned the late John Sillifant, Esq., of Coombe, in the county of Devon, there has been no serious diminution in the number of subscribers. There are at present on the books 69 life governors of the Society, 101 governors, 554 members subscribing not less than £1 annually, and 253 members contributing 10s. annually; total, 977. The growing disposition of local agricultural societies to enlarge the area of their operations, and to invite the manufacturers of agricultural implements to exhibit at their shows, has entailed on that enterprising body of men a great increase of cost and trouble to meet the requisitions of the various annual exhibitions. When therefore a proposal was lately made by the Southern Counties Association, embracing the counties of Hants, Berks, Oxford, Sussex, Surrey, and Kent, that their association should be amalgamated with this Society, the Council was induced in great measure by this consideration to appoint a special committee to confer with a corresponding body of the Council of the Southern Counties Association; and, after mature consideration, it was in the first instance resolved at a special meeting of the Council, held at Taunton, on the 14th of March, and afterwards confirmed at an ordinary meeting, held on the 28th of March, that it is desirable for the amalgamation proposed by the Southern Counties Association to be acceded to on the following terms: 1. That the name of the amalgamated society be 'The Bath and West of England Society (established 1777) and Southern Counties Association.' 2. That the rules of the Bath and West of England Society be adopted as the rules of the amalgamated society. 3. That in the united Council the vice-presidents and half of the Council (18) of the Southern Counties Association be added to those of the Bath and West of England. 4. That the office do continue at Bath, and the officers of the Bath and West of England Society become those of the amalgamated society. 5. That the meetings of the Council be held at Yeovil. To this proposal the Council recommend that the annual meeting give effect. The Council are happy to announce that the financial position of the society is satisfactory. The funded capital has not been in any way diminished during the last three years, and it is hoped that the experiment of holding a meeting so far west as Falmouth will prove conducive to the great objects for which the society was founded. The exhibition, though not so large as on several previous occasions, has the merit of great excellence. Stock and poultry are represented by fine specimens of the best breeds, machinery and implements by the productions

of many of the best makers from remote parts of the United Kingdom. The Art Department is replete with works of great merit by living artists, whose names are annually becoming more familiar to the frequenters of the society's exhibitions, and the Council desire to record their obligations to the Lord President of the Privy Council, and the authorities of South Kensington Museum, for the fine collection of objects in decorative art entrusted to the society for exhibition. An invitation having been received from the Mayor and Local Committee of the town and county of Southampton to hold a meeting there in 1869, the Council recommend that, subject to the usual requirements of the society being complied with, the invitation be accepted. At the last annual meeting a proposition was made that a petition should be presented to the Legislature in favour of stricter regulations in reference to the importation of cattle from foreign ports. The subject was referred to a special meeting of the Council of the Society, and a memorial, which it is hoped has not proved fruitless, was presented to the Privy Council. The Council recommend that the Earl of Carnarvon be appointed to the office of president for the year 1869. To supply the vacancy occurring in the Council by resignations and the usual retirements, the Council recommend that the following members be elected: Mr. Wm. H. P. Carew, Antony House, Torpoint, as vice-president. (The names of the Council included the Rev. A. Thynne, Penstow, Stratton, and Mr. E. B. Williams, Nanskeval, St. Columb.)

On the motion of Mr. JONATHAN GRAY, seconded by Mr. P. P. SMITH, the report was received, adopted, and ordered to be circulated among the members of the society.

Mr. POOLE, in pursuance of notice, moved an alteration of the sixteenth law so as to allow of a general law being altered at a special general meeting as well as at annual meetings. The motion was seconded by Mr. HUSSEY.

Mr. WILLS thought the alteration unnecessary, as the members of the society put the greatest confidence in the Council, by whom the whole of the business between the annual meetings might be transacted as heretofore.

Mr. ACLAND, M.P., pointed out that it would be impossible to complete this amalgamation with the Southern Counties Association without altering some of the laws, and it would be a pity to leave the matter in an unsettled state for twelve months till the annual meeting.

No amendment was proposed by Mr. Wills, and the motion was then put and carried.

The Rev. T. PHILLPOTTS moved that the proposed amalgamation with the Southern Counties Association be approved and confirmed.

Mr. SPOONER, of Southampton, seconded the motion, which was carried.

Mr. POOLE moved the appointment of a committee to consider and report to a special general meeting of the Bath and West of England Society, how the proposed amalgamation could be best carried out, and what alterations in the rules were required.

The motion was seconded and adopted.

Colonel ARCHER moved that the Earl of Carnarvon be elected the president of the society for the ensuing year, which was seconded by the Rev. T. PHILLPOTTS, and carried unanimously.

Mr. FARTHING then proposed, and Mr. STOKES seconded the election of the members of the Council as recommended, which was agreed to.

On the motion of Col. Archer, Mr. W. H. Pole Carew was elected vice-president of the society.

A vote of thanks was then accorded to the chairman for the ability and courtesy with which he had presided over the proceedings of the society; and at a meeting of the council immediately preceding the annual meeting, it was resolved that the best thanks of the Council be presented to the chairman, vice-chairman, and the members of the local committee, for the liberality with which they had received and entertained the society, and for the zeal and ability with which they had laboured to bring the meeting to a successful issue.

## THE ISLINGTON HORSE SHOW.

There is a story told of a man who, on his return from the Derby, was found hurrying over his dinner in the coffee-room, and who, on being asked the reason for all this haste, answered that he was going to Astley's, and was afraid he might be late! It would have been imagined that he had seen quite enough of horses for once in the way, although we still finish the week much as this enthusiast did his day out. Astley's Amphitheatre is, to be sure, shut up and to be sold; but after the week at Epsom we wind up with the horse show at Islington, and it comes to much the same thing. There is the same smack of the sawdust, the like scenes in the circle, the lofty jumping, and "Pay here for the boxes." If they would only run a tame far now and then round the ring the illusion would be complete.

With some considerable experience of such meetings we have long thought that the horse show might be made something more of. There can be no disguising the fact that on the turf the horse is regarded merely as an instrument of gaming, and that the countenance of the Government in the way of Royal Plates, to be run for at comparatively heavy weights and long distances, has come in its influence to be little more than a nullity. Surely some of the thousands of pounds annually wasted in this way might be advantageously applied in some other direction. At any rate, the experiment is worth trying, for nothing could promise to be more idle or useless than this expenditure, as at present persisted in. Let there be a few of the Royal Plates devoted to the encouragement of sires either for the saddle or harness, and a few more of her Majesty's gifts be offered for hunting-horses of certain ages and capabilities. A very small modicum of patronage of this kind would have a very great effect. It would give a stamp to the thing, and incite many more people to exhibit and improve, who may not as yet have thought much of these opportunities. The Royal Agricultural Society of Ireland is indeed about to take the matter up, and address the Government on the deterioration in the breeds of horses. Unfortunately the Charter will not permit of the Royal English Society going before Parliament, or the Council might do something of the same kind, say in the course of the next ten or twelve years. Of course a vast deal will depend upon the conduct of the shows. If such a gathering be regarded chiefly as a scheme for getting shillings and halfcrowns out of the public, our argument would be as false as if we went for breeding horses with main consideration of the hundreds and thousands the black-legs may get out of the public. If with this one great object in view an irrepressible air of absurdity is to characterise the proceedings; if the unfortunate horses are to be "jumped" and "jumped" again from one week's end to the other, and as an attractive finish to run trotting matches in a circus, we merge the horse-show into the fair show. There was during the Monday in Whitsun week an entertainment at Islington, in the course of which "lady jockeys" rode a steeple chase "over four water jumps and eight fences," with a display of fireworks in the evening. It is only right to say, that this exhibition was not be in the Agricultural Hall, but on the adjoining County Cricket Ground. There was, however, it is fair to add, "extra prizes for trotting and leaping" in the Agricultural Hall, and sportsmen and horsemen could have had the opportunity for comparing these grand national demonstrations one with the other. There was, though, no

fireworks after the trotting, an almost culpable omission, which the directors should order their people to see to by another year.

To our thinking, the sportsman should have no greater treat than a well-conducted horse-show. Let us take him on a month or two, when in the centre of a great grass ground three gentlemen have some of the picked nags of all Yorkshire parading around them. Beyond a solitary attendant at the gateway there is not a soul to interfere with these authorities. The very horse seems to make his entrance and exit by instinct, and though possibly once or twice during the day a varmint-looking gentleman with a certain official air about him may cross the scene, it is as likely as not that he never exchanges a word with the judges, but, in the exercise of excellent taste, leaves them to their duties, content to see that the genius of good order still reigns supreme. There are no trotting matches, there are no "leaping" matches; but if a man wishes to try a horse, there is a row of bushy hurdles in a quiet corner, at which he may put anything he has in price. But what does any true sportsman think of this jumping in public? Mr. Thomson's clever horse would not have it at Islington, and another that took a first prize as a hunter absolutely refused to have anything to do with such Cockney contrivances. As *The Times* has it, "One horse walked up against the fence and coolly pushed it down, and another showed his intelligence by selecting a break between the tressels, through which he shambled much as a donkey would manage a two-foot ditch. It is a pity better arrangements were not made for jumping; although no judge would think of condemning a hunter for refusing a fence with a crowd close under his nose, laughing, shouting, and cheering by turns." And yet horses were sent time after time over "the jumps;" while Lord Macclesfield stood by, with a smile of something like shame on his face, and the officials and the other "set" and the directors, and the visitors, and the clerks of the Company, and the distinguished foreigners got in each other's way, and took complacently enough to judging the judges. What a fuss they did make of it, to be sure! Every now and then somebody sounded an alarm, a cross between a gong and a dinner-bell, and one was irresistibly reminded of the "Walk up! walk up! all in; just a-going to begin!" Then a director said to some unfortunate groom in charge of a horse, "Now walk!" and then somebody else, who wasn't a director, squeaked out, "Now trot!" while a third ordered him bodily out of the ring, and a fourth told him to stop where he was! And then they all went and bowed and smiled at the judges, under the manifest impression that they had been doing a deal to facilitate the business! But how is it there are no gongs, no board of directors, no distinguished foreigners, no clerks, to interfere with the arrangements of a Yorkshire meeting?

The Horse Show pays; but we should like to see the horse show regarded as something more than a successful speculation. Everybody, as it is, seems to treat the thing as a joke. People laugh, as they would at "Mr. Merryman," when a beaten horse runs round and nearly over an official. The proceedings, moreover, occasionally approach very closely upon acts of cruelty, and many a horse may never forget the "bucketing" he gets here. With some love, and we had almost added respect, for a horse, we have been induced to say so much upon so much that is objectionable in this now annual exhibition.



The doors opened for a fifth Show, as usual on the Saturday after the Derby, and in the course of the day there were a fair number of visitors. There were two sets of judges—the lords and commons: the lords commencing the business of the day a little after ten, with the weight-carrying hunters, a rather heavy class, numbering fifty. Amongst these were about a score that looked like hunters, and two notorious impostors who have taken their value in prize-money a hundred times over, as neither of them as hunters is really worth a ten-pound note; and we hope, for the good of the cause, of horse-shows in particular, that they will never have another penny awarded them. Those that struck us as possessing hunting characteristics were Mr. Anstruther Thomson's Borderer and Valeria, about which there could be no mistake, although we think there decidedly was, in giving Miss Tyler's Tyroconnel a place, for he has anything but a hunting forehead. Capt. Percy Williams, who has often acted as judge in the Hall, had a big slashing five-year-old with rather a loaded shoulder and strong round flashy action, that would require a deal of steam to keep him going, and who smacked a little more of charging than staying with hounds; but he is a young one and big one, so time may work wonders as he sobers down. Mountain Dew, a well-known prize-taker, and a hunter all over, being a capital goer and a fencer in the open, would not have anything to do with the jumping business here, many more horses following suit during the day, including Capt. Thomson's good-looking hunter, Borderer. Can this be wondered at? As well might we expect hunters to take to sawdust and face gaudy green-pea-coloured leaping-bars topped by rows of Lincoln and Bennett's, or Christy's best, and the staring heads within them, as a good man across country, to don a chignon, long stockings, and short gauze petticoat, and be as *au fait* in simpers, curtsies, and turning heels over head, or jumping through a hoop, as the American Ella himself. Mountain Dew has thickened, but would have shown to more advantage with less carcass. Mr. All-sopp's Sparkenhoe was a really gentlemanly-looking horse, of fine form, breed, and action, his legs coming well under him; couple with him Mr. Davies Bryan's Hereford, and you have two horses very taking to the eye, and of excellent symmetry. Captain Heath's Chicken caused much merriment from his description in the catalogue as standing "16 hands 5 inches high, a wonderful hunter up to 17 stone." Five inches! while the dam of one of the stud horses was stated to be a well-known stallion! Mr. Manner's Phalanx was a compact good-looking horse, but with something more of the charger in form and action; as was Colonel Carleton's Warkworth, but we doubt not that both can take their turns as hunters. Mr. Fison's had breed, and could move. Mr. G. Stones' Middleton, and Mr. S. Copestake's Bellerophon, and Mr. Booth's Shamrock, were good-looking, the latter lighter in his carcass than his owner is in the habit of showing horses. Lady, an old-fashioned hunting mare of Mr. Codrington's, looked more like sixteen than six; and Lord Ingestre showed four, Godfrey and Gurney being our fancy, the latter a useful, good-topped horse on a short leg with fair action, but not over fast looking. Colonel Somerset's Tom Steele is a quick-looking grey, with bone, and Mr. Greetham's a fair-looking chesnut. Voyageur has a shoulder that would stop one of Stephenson's locomotives, and Master of Arts, though grand in his top, is the most wooden choppy goer that ever put his head through a breast-plate: both were in excellent trim for the German sausage market, a market that by nature they are much more adapted for than Market Harborough, or any other hunting country, though kept in the ring till the last. The

next class, forty-eight in number, for hunters without condition as to weight, was headed by a lengthy, well-formed, gentlemanly horse of the Prince of Wales', Knight of St. Patrick, who was awarded second honours, a horse that the owners of a great many in this class might try and carry away in their eye, just to give them some notion of what a hunter ought to be—a thing, judging them by some of the brutes exhibited, they must have but a very few loose ideas about. In fact, there was a deal of weeding, which might have been done with a very wide hoe in a very little time, without the slightest chance of injuring a good plant. Denmark, a very useful but rather plain horse, the judges did not take to, and although with many of the characteristics of his brother Mountain Dew he has more of the charger about him, and he made his exit, never to return, with such horses as Mr. Paull's Plaudit, Mr. Drage's Thorpe Malsor, Mr. Sander's Crik, Col. Somerset's two, Aërolite and Carnarvon, Mr. Pagden's Confidence, Mr. Greetham's chesnut, whilst horses with shoulders like Mr. Clarke's Rosa, Mr. Raikes's Amazon, and Mr. Davis's Chevening came labouring in a second time and were kept before their lordships till the last turn. The Honourable Mrs. Villiers, a fine woman across country in her day, sent a very neat, compact chesnut, Toby, but who wants his shoulders shaved to make him perfect. Among those good-looking were Mr. Kirk's Bayard a good-topped, useful horse; Mr. Bevan's black mare, by Sir Hercules, with form, breed, and action; Mr. Newman's Prince; Mr. Lloyd's Planet; Mr. Topham's Springy Jack, third here last year to Brayfield and Goldfinder; and Mr. Thomas Bradfield's Harkaway. With something about them commendable were Mr. Mitchell's Orion and Esquire, and Mr. Barker's Tom Bowline; but the beauty of the hour, and who received her honours amidst a general clapping of hands, was Lady Derwent—a lady not only by title, but in manners, form, and carriage—who for symmetrical proportions, strength, and breed is a Venus in horseflesh, and if it were not for a deep dish in her frontispiece, some three inches below the eye, which nearly approaches to a deformity, she would be perfect: she was the best and Cup four-year-old at Driffild last year. The third was the well-known General, whose carcass was a little too big; he has thickened considerably, and is deservedly a great favourite with most people; if he has a fault, he is rather long from the elbow and stifle to the ground, or short from whirl-bone to stifle. For hunters without condition as to weight, and not exceeding fifteen-two, there were nine fair ones out of the twenty-three. Chillon, a black, well-built gelding, was considered the best by their lordships. Nutbourne running him very hard, as he was a really nice one. Sir George Wombwell sent a very nice bloodlike chesnut mare, a little slack in her back; and Mr. Cox has a capital framed one in Star; whilst Mr. Addison's Idle Boy, Mr. Barker's Exchange, Mr. Beck's Peter, Mr. Newman's Fire King, and Mr. Hall's Nimrod were commendable for looks. Out of the thirteen four-year-olds there were five somewhat in the form and fashion of hunters, the prize going to Nugentstown, a useful, hardy-looking chesnut belonging to a noble lord whose name ought to be familiar to most foxhunters, or at least to those who do not labour under the same infirmity (if we can call it one) as a well-got-up swell in a train the other day, who declined our proffered *Telegraph* in the most off-hand manner with "I kent read." The second, Brigadier, a powerful, deep-topped horse, with a sensible head if not a handsome one, would have shown to more advantage if he had not been suffering from the Killerby Hall complaint—too much to eat. Mr. Goodliff's Father Mourad, said to be by Trumpeter, appeared to be very good-looking; whilst Mr. Topham's brown by the Ugly Buck was a taking horse spoilt by a slack

loin, and Mr. Toynbee's Bird's Eye was neat, quick, and a goer. Then came feeding time, and the Lords to luncheon, and the Commons proceeding with the park hacks and ladies' horses, horses of all shapes and sizes with jockeys to match, including the guardsman in uniform, who lives on his pay, proud of his weight and inches, down to the bow-legged stablelad, who, if he could only have kept that deformed bit of humanity within eight stone seven, might have had a valet, dined with dukes and marquises, and been lauded by toadying scribes as the great jockey So-and-so. The first and second were neat hacks of fashion, and the third a light, leggy charger; but Cuirassier pleased us far more as a charger. General Hess, by The Nabob out of Lady Alice by Lanercost, was first in the thoroughbred stallions in a class of nine. He is a nice-looking horse, with good ends and fair middle; the second being Idler, by the Flying Dutchman out of Urania by Idle Boy, a varmint, hardy-looking horse with fair ends and limbs, but a hollow back, and we fancied rather light in his thighs. Mr. Stiggins' still looks like a good useful horse for the country, so far as shapegoes. John Halifax is a big one; Ivanhoff the handsomest and best-halped of the lot, cut him off at the knees; Brown Dayrell coaching-looking; First Hope a weed; and Mail Train so overloaded with flesh that he seems short and over-topped, and looks nothing like so well as he did a month or two ago, when we saw him knocked down at Tattersall's at something over ten guineas, which we thought at the time remarkably cheap. The roadster stallions were not a grand class, the prizes going to three roans—Rapid Roan, a rather good-looking roadster with a heavy forehead and waspy middle, but a first-rate goer, was shown at the meeting of the Royal last year at Bury, when he only came in for a commendation. Young Performer is anything but a true-made one, with not the best of heads; while Young Phenomenon, though he can go, almost comes under the denomination of a two-ended horse, having but little middle. The prize stallions under fifteen hands were not a strong lot—the first a three-year-old, Merry-legs, being a very true-made hack with good ends and no lumber; and the second a good goer of fair form. So far, we have seen better horses in all these classes at the Agricultural Hall.

Of cover hacks and roadsters, from the glimpse we got of them in their stalls, there appeared to be some fair samples; but of course action would go a great way. Cheltenham Tommy, a strong short-legged cobby hack, is more remarkable for useful than elegant looks, while the Dorking lass, Brown Duchess, shows a deal of quality with a handsome top and capital shoulders, but not the best formed forelegs. Cheshire Phenomenon is one of the roan Norfolk trotting tribe, some of which are strong useful hacks enough, but too many like our Cheshire friend, whose shoulders always remind us of Sinbad the Sailor and his hanger-on the Old Man of the Sea. It is quite astonishing the number of really good-looking horses one comes across, who if not burdened with this incubus would be all but perfect. Romulus and Remus found room in the Agricultural Hall, the former a very good-looking lengthy grey cob, carrying off the first prize for park hacks up to weight; the second to him being Hero, another handsome one of his sort, but a very different stamp, being a powerful cob, something of the Cleveland cart-horse in miniature. He was steered by a feather from Pimlico, man and horse appearing to be cut out for one another. Mr. Salter's Young England was a powerful cob of somewhat the same class, and a very useful animal for a welter weight. In the harness class Romulus was again elected, beating Nellie, coming from the same Common, a very neat little hackney mare, perfect in manners in a gig, with nice quiet elegant action, and who, it will be seen,

heads the list in another class of park hacks for riding purposes. Highflyer came in for a commendation, a cobby hack that could step; and there were some others worthy of mention, but nothing extraordinary. The Prince of Wales had a couple in the next class of park hacks. Lord Macclesfield acted for Col. Kingscote, the Master of the Horse to the Prince, who retired from the ring for the time. Rupee is a fair hack; Le Vent, a bay lathy Arab, perfect in his manners as a lady's horse, and quietly ridden by an unassuming horsewoman; while the third prize, Bridesmaid, is a nice hack, with some style, but a trifle thick at her shoulder points. We don't hold with applauding or hissing gentlemen while acting as judges, as you would a lot of mountebanks; and knowing how easily an audience is led on to hiss or cheer, we look upon such ebullitions of feeling with some doubt, more especially when there are more blanks than prizes; but the mistake here is clearly the plan of conducting the whole thing, more like a second-rate circus than a meeting for sportsmen and horsemen. Moreover, this is the only show of the kind, that we know of, at which the judges are supplied with the names of the exhibitors. At all other meetings the awards are made by numbers, and it was in this way that the late Prince Consort gained his many premiums at the Royal Agricultural Society and Smithfield Club. But at the Islington Horse Show, with stewards and others continually earwigging them, it was concluded that the judges knew the Prince's entries; and hence the sad scene that occurred. Any man may make a mistake, a peer perhaps as readily as a commoner; but the question is why a lord should be made an exception, and put in a position manifestly to his own disadvantage? If the ring were kept thoroughly clear, if the lords were left to themselves and their books, which should give nothing beyond the conditions and the numbers, their awards, let them be ever so indifferent, would hardly be received with *hooting and hissing*. We have seen as many horse shows as most people; but we remember no such demonstration as this. Katplan, one of the Arabians presented by the Sultan to the Prince, was here, and looks much improved since he has been in this country. Miss Letitia Millard, quite a feather in a skirt, handled a chesnut with a big knee in an artistic manner, but so quietly, that it was a treat to see, after the exhibitions one had to endure year after year of a rough-riding amazon, with no hands, who was always pulling and hauling away at her mount, or on the grin with mock-modest smiles and leers. After Lord Macclesfield left, there was fearful pottering and waste of time with the Commoners, who seemed to have no method whatever, and when they came to the park hacks under fourteen hands and a-half, their feeble hesitation was almost unbearable. The Hero, who with his rider went round and round the ring time after time till he sweated again, must have found this out. Mr. Salter pulls down with his saddle a trifle more than eight-stone-ten! Round and round, again and again, and then they are pulled up for inspection, and the more the judges look the more they hesitate, and the more undecided they get. Then the gong is struck by some one, time after time, for the next class, muffins, more champagne, or perhaps in the hope of hurrying on the trio to a decision; but it has not the least effect, and there are offers of 6 to 4 that the judges, like juries, will have to be locked up. Statue-like they stood; then a yoice-over noisy gentleman tendered his advice, pointing first to one horse and then another. At last they decided by disappointing all those that did not get prizes, more especially Hero and his rider, who had not had such a bucketing for many a long day. Nellie, as we have said before, was first, though we liked her better in harness; Fenette is a small chestnut mare, not much to look at, with good fast flourishing but

vulgar action, and Quiktailver a cobby hack. There were several in the class, for there were all sorts, weight-carrying cobs, etcetera, that, before another bunch, like spirit-rappers, might turn the tables. Black Jessie, standing fourteen hands, was really a charmer in harness, with neat useful action; while Miss Menken was a common looking cob hack, not remarkable for head, shoulders, middle-quarters or limbs, and no compliment to the "adorable Mazeppa," as the Frenchmen christened her. Puss, a dun, with a hog mane, and a very short round bushy tail that looked like a chignon, so artificially was the little kitten got up, did not want for action or knowing looks. In the ponies not exceeding thirteen hands, Maltum in Parvo is a really nice pony, very showy, with form, breed, and stylish action; and Jacob, a black, neat, clever goer, without any nonsense; while Black Prince is quite a different stamp to Maltum in Parvo, with short hammering action. There were one or two nice harness pairs, the cream of the lot, or rather their owner, coming from Argyleshire. The customary tom-foolery in trotting came off on Friday, for a higher title you cannot give it; a groom with a varmint-cover hack in a high mail-cart, went over a crasher at one of the turns, and while they got the horse free and gathered up the pieces, there was a pretty general verdict of "served him right." Later in the day another servant was taken off senseless, and it was thought at first that he had been killed outright. Shepherd T. Knapp, the American, was in full force: he has rather a heavy neck and head, but a round deep middle piece, great quarters and limbs, and is a really fine fine-goer. The wind-up was with the jumping, a good-looking horse of Captain Carleton's, with something of a charger-like forehead, taking the artificial double in and out, and topping a rasper in hunter-like style. The second-best was Buzzard, a light, blood-like, steeple-chasing looking animal of good form. Lord Combermere, Captain J. Anstruther Thomson, and Captain Percy Williams were judges of jumping, and superintended the arrangement of the fences. Two or three came to grief—one a trooper, who stood much more chance of being down among the dead men, or maimed by an ugly roll he got underneath his horse, than he would, by all accounts, if in the Abyssinian rook-shooting party. Another, a dealer-looking man in a white hat, took the fences very decently several times, but at last put a climax to his crimes by getting an awful purl, plunging the tan with his nose, and turning up with his face dyed. He retired for a while, and then was ushered in again, looking very ruffled; but, on Captain Percy Williams presenting him with a bit of yellow ribbon, which appeared to set him back of Gilead, he gained his proper equilibrium; for no sooner were the colours fastened to the horse's head than the battered white hat was seen topping the bars, amidst continual applause, and Solomon was once more in all his glory!

## PRIZE LIST.

### HUNTERS.

JUDGES.—Lord Combermere, Lord Macleanfield, and Lord Kesteven (and for Thoroughbred Stallions).

Weight-carriers up to 15 stone: First prize of £80 to Capt. E. N. Haygate, Buckland, Leominster (Mountain Dew); second of £40, Miss Tyler, Wareham (Tyronnel); third of £20, Mr. J. Anstruther Thomson, Drizworth (Borderer).

Without condition as to weight: First prize of £50 to Mr. E. Horaby, Ganton, Yorkshire (Lady Derwent); second of £25, E.R.H. the Prince of Wales (Knight of St. Patrick); third of £15, Mr. T. Gee, Wadhurst, Sussex (The General).

Without condition as to weight, and not exceeding 15 hands 2 inches high: First prize of £40 to Mr. J. Casson, Bough-by-Sands, Carlisle (Chillon); second of £20, Mr. W. J. Lloyd, Watford (Nestbourne).

Four-year-olds: First prize of £50 to Lord Somerville, 35, St. James-street (Nugentstown); second of £25, Mr. J. B. Booth, Killerby, Catterick (Brigadier).

### STALLIONS.

Thoroughbred: First prize of £40 to Lord Spencer, Althorpe Park (General Hess); second of £20, Mr. T. Merrick, Northampton (Idler).

Roadsters not less than 15 hands high: First prize of £25 to Mr. E. Jolley, Banham, Norfolk (Rapid Roan); second of £15, Mr. J. Rowell, Bury, Huntingdon (Young Performer); third of £5, Mr. J. Abel, Norwich (Young Phenomenon).

Stallions under 15 hands, for getting Hacks, Cobs, or Ponies: First prize of £15, Mr. W. Major, Malton (Merry-legs); second of £10, Mr. D. Lister Westwood, Ilkey, Leeds, (Black Performer).

### HACKS.

JUDGES.—Colonel the Hon. Charles Hay, Colonel Kingscote, and Mr. Harvie M. Farquhar.

Park Hacks and Ladies' Horses of any height: First prize of £20 to Mr. J. G. Morrel, Notting Hill (Jenny); second of £10, Sir E. C. Dering, Pall Mall (Quicksilver); third of £5, Lieutenant-Colonel Dougall Astley, 40, Belgrave Mansions (Napier).

Cover Hacks and Roadsters, not exceeding 15 hands 2 inches high: First prize of £15 to Mr. T. W. Potter, Earl Court, Cheltenham (Tommy); second of £10, Mr. W. Morley, Eppingham Hill Lodge, Dorking (Brown Duchess); third of £5, Captain St. Clair Ford, Zeelugt House, Cheltenham (Cheshire Phenomenon).

PARK HACKS, WEIGHT-CARRIERS, not exceeding 15 hands 2 inches high.—First prize of £20, to Mr. C. M. Baker, Clapham Common (Romulus); second of £10, to Capt. T. Hargreaves, Arborfield, Reading (Hero); third of £5, to Mr. G. H. Smith, Stamford Hill (Kitty).

HARNESS HORSES, not exceeding 15 hands 2 inches high, of the best shape, with park-action, in single harness.—First prize of £15, to Mr. C. M. Baker, Clapham Common (Romulus); 2nd of £10, to Mr. W. G. Clift, (Nellie); Highly commended and Medal, to Mr. W. Green, Leeds (Highflyer).

PARK HACKS AND LADIES' HORSES, not exceeding 15 hands 1 inch high.—First prize of £20, to H.R.H. the Prince of Wales (Rupece); second of £10, to Mr. Bedford (Le Vent); third of £5, to Mr. A. T. Hewitt, 38, Gloucester Place, Hyde Park (Bridesmaid); Highly commended, Mr. W. J. Beadale, Chelmsford (Duplicate). Horses, not exceeding 14 hands and a-half.—First prize of £20, to Mr. W. G. Clift (Nellie); second of £10, to Mr. E. T. Fowler, Jun., Gillingham Street (Finette); third of £5, to Mr. C. M. Baker, (Quicksilver); Highly commended, Mr. C. Groucock, Stanfield Hall, Wymondham (Pretty Season); Capt. Hargreave (Hero); and Mr. J. Casson, Carlisle (The Bean).

PONIES, not exceeding 14 hands, in single harness.—First prize of £15, to Mr. H. Beck, Brandon, Norfolk (Jessie); second of £10, to Mr. C. Dollard, Norwich (Miss Menken); third of £5, to Mr. C. Groucock, Wymondham (Puss); Highly commended, Mr. J. S. Calthorp, Isle of Ely (The Dandy); and Mr. W. M. Spence, Weston, Yorkshire (Venus); Commended, Mr. C. L. Sutherland, Croydon (Gipsie). Ponies, not exceeding 13 hands high, in single harness.—First prize of £12, to Mr. J. Gilman, Jun., Birmingham (Maltum in Parvo); second of £8, to Mr. H. Bullard, Norwich (Jacob); third of £5, to Mr. J. Hatton, Clapham (Black Prince).

EXTRA PRIZE: HARNESS PAIRS, not exceeding 14 hands.—First prize of £10, to Mr. C. M. Moreton, Lurgie Castle, Argyleshire.

GOLD MEDAL, as best of all the hunters, to Mr. E. Horaby (Lady Derwent).

## THE "EXHIBITION" AT ISLINGTON.

It is more than questionable whether the amusement which called forth so many bursts of laughter was of the right sort. If, instead of a trial of prize-hunters at fencing, this had been a donkey-race, or some clownish competition in which rough humour is an essential ingredient, the shouts of mirth would not have seemed inappropriate or uncomplimentary. As it was, the riding and deriding which went so closely together

were hardly well-matched. The horsemen who lost their stirrups, their temper, and now and then their seats, were bold equestrians certainly, or they would not have ventured on a public display of such remarkable incompetence. Some of them, with a grave persistency that was ludicrous to see, but is painful to think of, rode again and again at hurdles which there was not the least likelihood of their ever getting over, and seemed to be rather stimulated than discouraged by the re-echoing peals of laughter in their repetition of a wild rush, ending always in a sudden stop on the near side of the fence. Others belaboured their horses with heavy hunting crops over the head, on the cheek, anywhere, like mad tailors out for a holiday.—*The Daily Telegraph*.

The management depends chiefly upon the parades in the arena and the jumping burlesque as the chief "draws" for the amusement of the Londoners. No practical horseman would consider that hurdle-jumping in a public arena, when surrounded by a noisy crowd, ought to be regarded as any test of what a clever hunter could do in the open country, with the cry of the pack to stimulate his energies, and plenty of space to get into his stride, and to collect himself properly before taking off at his fences. Here I may state that this jumping buffoonery is a species of refined cruelty in which the female part of the assembly appear to take the greatest delight. Hunters that are positively as fat as prize oxen, from a cessation of work in the field, and that have been made up in flesh to hide faults, and show a sleek coat, are in a few instances galloped through the heavy tan flooring until the sweat rolls off them in streams, and then put at the hurdles when in a state of exhaustion, to blunder over them and come down "all of a heap" on the landing side. "Groggy" park hacks and stale old roadsters are also "rammed" at the hurdles by excited grooms and ambitious "swells," who appear to have had a few lessons in riding-schools, and take this opportunity to show off their seats.—*The Sportsman*.

Alas! the everlasting hurdles were introduced, and one of those bear-garden scenes, such a disgrace to the Islington shows, commenced; and in the first ten minutes there was as many spills as would occur in a quiet burst from Ashby or

Crick gorse. How fatal accidents were avoided is marvellous, and must be put down to sheer good luck, as horsemanship had nothing to do with it. What nerves people must have to charge different ways at the same place simultaneously! Of course collisions occurred, though none serious enough to cause damage. One man rode under the triangular props for the bell, instead of over the fence, and upset the lot, luckily clear of himself and every one else. Horses were galloped and jumped until the sweat streamed from them, the management considerably putting up four obstacles, instead of only two, as formerly; and, in fact, so abused and degraded were good animals by this farce that we took our departure in sheer disgust. Before closing these remarks, we must also refer to the catalogue, which was compiled with the usual care (?), and rivalled a pantomime in changing sex and colour; but the climax was reached in describing Captain Heath's The Chicken as sixteen hands five inches high!—*The Sporting Gazette*.

There may be a little of the circus about the show, and it goes on a day or so too long, but owners need not jump their horses unless they like; and with Dick Webster to lead the revels, and "tootle" the jumpers along, the Whitsun-tide visitors had a merry time of it. *This is, after all, the great consideration!*—*The Sporting Life*.

The jumping over the artificial fences caused great amusement to the visitors. As a rule, this is the most that can be said of this performance in so confined a space, for the display is utterly unserviceable for any assistance it affords to the judgment or estimate to be formed of fencing-power in the open.—*The Gardeners' Chronicle*.

The jumping business, to which strong objections are made by many of the exhibitors, serves to fill the Hall, and is unattended with danger.—*The Field*. [A groom who was thrown at a fence on Friday, according to the *Times*, "lay senseless and bleeding for nearly five minutes; but after a most painful suspense, he revived sufficiently to justify his removal, and later in the evening he was sufficiently well to walk. Altogether, the day was characterised by a series of singularly-narrow escapes."]

## HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.

The monthly meeting of the directors of this Society was held on Wednesday, June 3rd, in Edinburgh; Mr. Stirling, of Kippendavie, in the chair.

The Secretary reported that, in terms of the instructions received at the special general meeting on the 13th of May, he had forwarded the addresses to the Queen and his Royal Highness the Duke of Edinburgh to the Duke of Montrose for presentation, and that his Grace has since received the following letter from the Principal Secretary of State for the Home Department: "Whitehall, May 27, 1868. My Lord Duke,—I have had the honour to lay before the Queen the loyal and dutiful address of the Highland and Agricultural Society of Scotland in reference to the atrocious attempt upon the life of his Royal Highness the Duke of Edinburgh; and I beg to inform your Grace that her Majesty was pleased to receive the address very graciously.—I have the honour to be, &c., (Signed) GATHORNE HARDY.—His Grace the Duke of Montrose."

A letter was read from the Board of Trade announcing that the Lords of the Council have refused to recommend to her Majesty to grant a veterinary charter for Scotland.

A plan of the yard at Aberdeen, showing the position of the different erections, was submitted and approved of.

Mr. F. N. MENZIES reported correspondence between the secretaries of the different railways in Scotland and himself in reference to some more liberal arrangement as to the rates charged for stock sent to the general shows of the society, from which it appeared that the subject was brought before a meeting of the general managers of the English and Scotch railways, held at the Clearing House in London, in May last, when it was decided to adhere to the following regulations, which have been for some time in force: 1, Stock and implements to the show to be charged full rates. 2, From the show, if sold, full rates. 3, From the show, if unsold, to be conveyed free back to the station whence they were sent, at

owner's risk, on production of a certificate from the secretary of the agricultural show to the effect that they are really unsold. 4, All the above to be carried at owners' risk. 5, Collection and delivery to be performed by the owners. 6, Regulations Nos. 1, 2, 3, as to cattle and horses, apply only if traffic be conveyed in cattle waggons and by goods trains. 7, Poultry and dogs to be charged full rates both ways. 8, No reduction in the ordinary rates for horses or cattle when conveyed in horse boxes. 9, Parties requiring the exclusive use of a horse-box for only one animal, to be charged one fare and a half.

The Secretary stated that, on the other hand, the directors of the Highland Railway Company had very handsomely agreed to carry unsold stock going home from the Aberdeen show, in horse-boxes, free of charge; and to run special trains with stock, to or from the show, if the numbers are sufficient.

It was reported that, at the recent examinations by the Royal Agricultural Society of England, the principal prizes were gained by students in the class of agriculture in the Edinburgh University, and that every one of the Edinburgh agricultural candidates took a first prize. There were twelve candidates, of whom six obtained prizes, and out of the six prize-men four were Edinburgh men, three of them having already obtained the diploma of the Highland Society.

It was arranged that the following subjects should be brought before the general meeting on the 24th June:—Election of members; chair of agriculture; Aberdeen show arrangements; agricultural education; Veterinary College examinations; letter from Board of Trade in regard to veterinary charter for Scotland; No. 3 of the fourth series of the Society's Transactions; premiums awarded for essays and reports; Dr. Anderson's report on the chemical department.

The Secretary submitted the names of 46 candidates for election as members at the next general meeting, and stated that he anticipated a much larger list before the 24th.

## THE PREMIER ON THE PRIZE SYSTEM.

A meeting was held on Monday, June 1, at Halton, a village near Aylesbury, where Mr. Disraeli inaugurated an exhibition of the industrial products of the district. The idea of holding such a display originated with Sir Anthony and Lady de Rothschild, whose seat is situate in the neighbourhood. A circular inviting the villagers to send in some article of their handiwork was issued. Any objections to so doing were met in the address, which begged them to get rid of the notion that they could not make anything. They were also specially requested to encourage their children, "as the means of showing them the road which leads to the exercise of ingenuity and taste, and to a life of honest industry; as the road which does not lead either to the public-house or to the wasteful expenditure of time or money." It was pointed out that there was an industry followed in their villages which might be turned to great advantage. They could manufacture the plait into hats and bonnets, boxes and bonnets, in endless variety of form and colour; there was also great room for ingenuity in the production of plans and machinery for the hatching, rearing, warming, and cleansing of the poultry raised in such numbers in the district. It was promised that the highest degrees of merit in each class should be rewarded by silver and bronze medals—a promise which it was found had the most beneficial effect, as the keenest interest was shown in the endeavour to win so distinguishing a mark of skill. If any fear was entertained that the exhibition would be but a small one, it was speedily dispelled; for contributions had been sent in from fifty parishes. There were five classes of exhibitors—skilled artisans and tradespeople, labourers, their wives and daughters, school-children, domestic servants, farmers and their families. Baron Lionel de Rothschild placed the grounds attached to the mansion-house at Halton, formerly the residence of Sir Henry Dashwood, but at present unoccupied, at the service of the conductors of the *fête*, and a more delightful spot could not have been found in the Vale. The spectators, numbering something like five thousand, formed a large semicircle around the steps at the entrance. In the centre were the united choirs of Halton and Aston Clinton. Behind them was the band of the Grenadier Guards, under Mr. D. Godfrey; and a company of the 4th Bucks Volunteers, commanded by Captain Selfe, did duty at once as a guard of honour and keepers of the circuit beyond which the general public could not pass. At one o'clock Mr. Disraeli took up a position on the top of the steps leading to the mansion, his arrival being greeted with a hearty cheer. The proceedings were commenced by the choir singing a "Song of Joyous Greeting."

Mr. DISRAELI, who, upon stepping forward to speak, was received with loud cheers, said: I am afraid my words will sound very flat after the sweet voices which we have had so much gratification in listening to. But I obey the commands of the lord of the manor in addressing you one moment before we witness the exhibition of the industry of our vale and its neighbourhood. Now, for a very long time, it has been considered that the good old county of Buckingham only produced butter, beef, and barley (a laugh)—three excellent things, and produced in this county in excellent style. But the fact is we have, for a very long time, been producing many other things for which we have had no credit, and to-day we are about to attempt to vindicate our reputation. I think, therefore, that when you accompany us to witness the exhibition of industry, not of this parish only, as was first intended, in its more modest and primitive idea, but of fifty contiguous parishes that have contributed the result of their ingenuity to this exhibition, you will be astonished at some of the productions, and proud of the land that has produced them. Many of you know well that there are many instances of the arts and manufactures in which this part of the world has not only not been deficient, but has even excelled. The lace of Buckinghamshire—especially of late years—has vied with that of the Low Countries; and we have produced at public exhibitions that which has rivalled with success the productions of Mechlin and Valenciennes. In one part of the county there is the manufacture of furniture carried on with

singular success, in which our beechwood is used, particularly for chairs, which we have furnished to most parts of England, and even to many of our colonies. Our embroidery will vindicate its claim to the approbation of those whom I now address. But there are also several other departments of invention in which we shall to-day advance our claims for public confidence and approval. In the first place, let me congratulate you that in this county there is so earnest a movement in order to improve the residences of the labouring classes. In this county, for several years, there has been an endeavour—and a successful endeavour—to accomplish that great end, and to-day we shall find before us specimens of invention and of design for that object which, I hope, will achieve the great end desired, and which will unite comfort and convenience with economy. There is also, I am told, one other manufacture which I shall myself witness with very great interest, and which I think you must observe with no common feelings. It is the production of an ancient manufacture in this county, though little known out of it, and not so much as it ought to be in the county itself. I allude to the silk manufacture, which not only exists but flourishes in our county town of Aylesbury. We shall witness specimens of the art of ability rarely equalled. No doubt the account which has reached me of these productions is not exaggerated, because our manufacturers in Aylesbury compete, and compete successfully, with the French makers, the goods being exported to France, where they are re-exported back to England, and then bought with admiration in Regent-street—(a laugh)—as the finest productions of the French looms (renewed laughter.) Under these encouraging circumstances we need not despair of our manufactures flourishing and increasing in the good county of Bucks. To-day there is a very great effort to recognise success in all those varied branches of industry, and to stimulate the various arts. I know not whether I am correct in enumerating the number of medals to be distributed, but I believe nearly two hundred medals will be given to-day—certainly one of gold, very many of the sister precious metal, and a considerable number of an enduring metal, which will commemorate the name and achievements of the successful competitors for these prizes. Allow me for one moment to touch upon the interesting character of the scene before us. In what could the varied classes of our complicated and admirably-devised society be better united than for purposes like the present, and for ends like those which we are all anxious to accomplish? How much better are meetings like the present than mere meetings for brutal pastime, filling a void which you have felt, and which you have desired should be supplied, but which the generosity, the taste, and the intelligence of those who should give a colour and form to the society in which they live, have hitherto been deficient in affording; I think, therefore, that on this occasion every heart must feel grateful to the generous owner of the soil for the public spirit which on this and every occasion he has shown. And in all the arrangements that during six anxious months have been matured, we must recognise the graceful thought of that lady whose taste and intelligence have diffused throughout this neighbourhood such beneficial results. I will detain you but one moment longer, and, taking advantage of the position which I unexpectedly occupy, will announce the inauguration of the Industrial Exhibition of Halton and the neighbourhood, and ask you to accompany us to witness the triumph of the industry of the Vale of Aylesbury.

The models of cottages which had been sent in by carpenters and builders were critically examined. A special circular had been issued to the competitors of this class, which stated that "greater attention must be paid to substantial and interior comfort than to outward and architectural effects." Several models were sent in, some of which possessed a good deal of merit. The general collection of articles was of a very varied character. It included a quantity of needlework, which had been executed in a superior style. The judges, who, of course, had tasting orders, spoke highly of the qualities of the articles of food, such as home-made preserves, wines, cheese, and beer.

## CANON GIRDLESTONE AND THE LABOURERS.

The anniversary of the New Inn Friendly Society, Halberton, took place on Whit-Monday. In the afternoon a large party assembled at the New Inn, where a dinner was provided by the host, who is the secretary of the Club. Canon GIRDLESTONE, who presided, said: You seem to think there is no shyness in me—that I am made of brass. Well, but I really do feel shy. As I said in the pulpit this morning, I should be glad to see some provision made, so that when a man is "past work" he may receive some 5s., 6s., or 7s. weekly, thus ending his life in quietness and comfort. Take that suggestion into your serious consideration. I have, lying on my table in the vicarage, the rules of twenty or thirty trades' unions throughout the greater part of this country, and those of each contain this important provision—when the member is "past work" he has an allowance which for the remainder of his life will keep him in comfort and happiness. I have another thing to say. I consider that as the vicar of this parish I am the shepherd of a flock, including farmers, shopkeepers, labourers, artisans, all descriptions of men, and that I am not called upon to look to one class more than another, but to do my duty to all—endeavouring, in God's sight, to promote both the spiritual and the temporal weal of all around me. The public prints say, "The parson has no right to interfere with the temporal concerns of his neighbours." Am I to be confined to the pulpit and the church? Am I, when I see you in ruinous cottages, your wives and children wanting fire and clothing, living upon miserable hard cheese and stale bread, instead of beef and mutton, such as our good host has provided us to-day—am I when I see all this to turn a deaf ear, to be so blind and hardhearted as not to notice it at all? Am I to go home to my own comforts and enjoy all the prosperity that God has given me, without making a single effort to better your position? Some persons say that the parson ought to do that. But I hold quite a different doctrine. My duty is to provide you with the services of the church in which I minister without ritualistic innovation or any other kind of innovations—to preach to you "the truth as it is in Jesus." Another duty is to look to the temporal as well as spiritual welfare of every single sheep that my heavenly Master has committed to my keeping, and, God being my helper, I am determined to do so as long as I have health and strength. This is the promise to what I am going to say. I abominate anything like violence and aggression. Most of you have probably read of the outrages committed in connection with the trades unions of Sheffield, Manchester, and other places. Nothing could be worse than that workmen should combine either against their masters—destroying their masters' property—or else against their fellow-workmen who won't join a union. But with a careful safeguard against anything of a violent character, I do think that if you agricultural labourers of the West of England, who are undoubtedly very much less paid than any others in other parts of the country, would unite one with another not to damage your masters' property, not to injure those who don't choose to unite with you, but to respectfully, civilly, courteously, with kind Christian tempers and Christian hearts, represent to your employers that you cannot on 8s., 9s., or 10s. a week maintain with decency a wife and family, and lay up against a rainy day for the time of infirmity and old age—I do think that if you stoutly unite in this manner you may undoubtedly with God's blessing attain your point. If any number of operatives in the West of England would unite for that purpose—only they had better find some one to take the lead in such a union—I will give all the countenance and assistance in my power. You must not suppose that my heart is entirely engrossed in this one particular society. I am your president, and most of you are my parishioners. But I must bear in mind that there is another club of a similar kind in this parish. In another place it has been represented that I am opposed to that club; but I take this opportunity of stating that I am as thoroughly friendly to that club as I am to this. Both have the same objects: both are composed of labouring men. I don't see why they should not be on the most friendly terms with each other: the

only rivalry between them should be who can get the most members, and who can get the largest amount of funds. For my own part I reciprocate any good feeling which they have shown me. It has been said that I invited the police to keep the "Hearts of Oak" club in order when they met last Friday. I may mention that the whole of the club, with the exception of a few honorary members, assembled on my lawn and gave my wife and family as hearty cheers as you yourselves have given me this day. If I had received an invitation to dine with the club—which I did not—I should undoubtedly have accepted it. I should have gone in the fullest confidence that every labouring man in that room belonging to that club would have protected me from the slightest attempt to insult or injure me. Every one of them as I believe has as affectionate a heart towards me as I believe you yourselves have. The police did not come into this parish to keep the Hearts of Oak in order, but to keep a few farmers in order. They came to keep in order a man who occupies the office of churchwarden in this parish. Being charged with the custody of the parish, he asked my representative on the left hand to lend him the keys of the church, and then what did he do? Without the slightest notice he had the smith at his elbow, who takes off the lock of the church door, puts it in his bag, goes to Tiverton, and gets keys made. In what a predicament I am placed! The churchyard is my freehold just as much as this house is a free house. What should I do to the man who said "Give me the keys of your house"? I should say, "Get, you fellow, out of my premises directly" (laughter). But the person of whom I am now speaking did not dare to do that. In a sneaking way he gets hold of the keys: the locks are taken off, and he gets false keys made, so that he may enter the premises at any time he chooses. I repeat that the police were called into this village on Friday, not to keep in order the Hearts of Oak, but the gentleman who, as the parish churchwarden, took off the lock of another person's property and had keys made for his own use. Understand what the parish is. This parish has 1,750 people in it; some are men, some are women; some are landowners, some are farmers and occupiers; some are tradesmen, some merchants; some are labourers. It is absurd to suppose that the parish is composed of any one class. The parish property belongs to the poorest labourer as to the richest landowner or the most prosperous farmer. My position is this. I don't wish to trespass on anybody's rights, but merely to hold tight by my own. I will not allow anybody to take from me one jot or tittle of the property entrusted to me by the law of England, of which I am the guardian and the custodian. At my tithe audit dinner I stated that I was most thoroughly disposed and determined to overlook everything past, to let bygones be bygones. I now say that I am equally determined, through good report and evil report, to maintain inviolable every single privilege committed to me by the laws of England as the vicar of this parish. In doing that I am defending, not myself, but you. A friend of mine, writing from Yorkshire the other day, said "When the men you sent me first came they could not do above one-third as much work as my own Yorkshire men do; but it is wonderful what twelve months' beef and mutton has done for them." I replied, "My dear sir, all that a Devonshire man wants when he gets to Yorkshire is a proper quantity of beef." Yea, beef suits them better than dry bread and musty cheese (laughter.) It was a curious thing that when I was preparing to meet you on the lawn I was told that a young man wanted to see me in my hall. I went to see who it was, and found an uncommon dapper spruce young man, with a watch-chain and everything complete—in fact, much better dressed than I was (laughter.) I looked down on my rusty black—that of a poor persecuted parson (laughter.) "I am," he said, "one of those who twelve months ago you sent into Lancashire"—my own parish. I answered, "Well, it appears that I did you a good turn." He had come down to attend the meeting of the Hearts of Oak Club on Friday last; he said he thought I was going to speak on the question of labourers' wages, and he should like

me to mention his own particular case. He stated that he had not been there very long before his wages were raised to £17 a-year, and everything found him. Well, his coat and watch looked very much like that (laughter.) He added, "Nothing should induce me to come back and receive the low wages of Devonshire." He had his sister with him, and was going to take his brother back. This is only one out of a great many cases. With a few exceptions the hundred men whom I have sent to different places in the country are prospering as much as I could possibly desire. I say it is for you to help yourselves. You can do so by united action, respectful, courteous

action—with no violence, no aggression. If you cannot get your wages raised in this parish and neighbourhood, do like others have done—go and seek your fortunes in better paid counties than this. I observe present my friend Mr. Grilla, who has always stuck to me like a leech; and I am sure he will agree with me, that when I advocate higher wages for the agricultural labourer, I am advocating the prosperity of the farmer himself. I have said over and over again, and I maintain it in spite of everything said to the contrary, that as the best fed horse does its work the most satisfactory, the best fed labourer likewise gives the most satisfaction in his work.

## ROYAL AGRICULTURAL SOCIETY OF IRELAND.

The monthly Meeting of the council of this Society was held in Upper Sackville-street, Dublin, Sir George Hodson in the chair. The other members present were—Hon. Charles J. Trench, Lieut.-General Hall, C.B., Charles Colthurst Vesey, John Bolton Massey, John G. Coddington, Edward Purdon, J. P. Byrne, Laurence Waldron, D.L., H. J. MacFarlane, J.P., Dawson A. Milward, Hans H. Woods, D.L., Richard Challoner, Robert Borrowes, and Rev. R. W. Bagot.

A subscription list was opened for the prizes offered by the local committee of the late cattle-show held in Stephen's-green, the council contributing £50, and the local committee £50. It was stated that the competition would be very large, and that important results would follow from so desirable an object.

The half-yearly report was submitted by the CHAIRMAN, and adopted, with some slight modification in reference to the prize offered by his Excellency the Lord-Lieutenant.

The SECRETARY read the accompanying communication, which had been received from Dr. Steele:

"Royal Dublin Society, Kildare-st., 15th May.

"My dear Sir,—I duly submitted to the council, at their meeting yesterday, your letter of the 4th inst., together with its accompanying resolution of the council of the Royal Agricultural Society, proposing joint action on the subject of the deterioration of the breeds of horses in Ireland, and I have been directed to acquaint you that the council of this society had previously resolved to address Parliament on this important matter.—I am, my dear sir, yours very faithfully,

"W. E. STEELE, Assist.-Secretary.

"Capt. Thornhill, Sec. Roy. Ag. Society, 42, Sackville-st."

Mr. WALDRON thought it would be better to have two bodies acting independently in the matter.

The CHAIRMAN said there was this peculiarity in the matter, that the word "Parliament" attached to the resolution would have the effect of taking the matter out of their jurisdiction.

Mr. WALDRON observed that it was considered if Parliament addressed the Crown to issue a royal commission it would give general satisfaction. Many gentlemen were of opinion that by acting independently it would be much better than if the two bodies acted together.

Mr. MACFARLANE remarked that as the Royal Dublin Society would not co-operate with them, he did not see why the question should not be referred to the committee to take action, and call on the Government to issue a royal commission to inquire into the whole matter.

Mr. WOODS said a committee had been already appointed, and was then in existence.

Mr. MACFARLANE believed that the Royal Dublin Society would not act with them in any matter.

Mr. WALDRON did not think Mr. MacFarlane was justified

in making such a statement, as they had at that moment a Joint Flax Committee. He repeated that in his opinion it would be better and more effective if the two bodies acted independently of each other.

Captain VESEY was not aware that on all subjects they had declined to co-operate with them. The committee might be summoned together to consider the subject.

Mr. MACFARLANE thought they should be empowered to take the necessary steps to apply to the Government at once, as it should be done in June. Power should be given them to make application at once, without calling on them to make a report to the council. He was not sorry how matters turned out; because the Royal Dublin Society having petitioned Parliament to issue a royal commission, it was time for them to apply to the Government to do the same thing, and thus strengthen them in adopting any course which they might think proper.

Mr. WALDRON believed that there was a disposition on the part of the Government to give them every assistance; but as considerable expense would be entailed, they did not like to take the responsibility on themselves. If the petition was attended with success, of course the Government would merely be the executive in the case to carry out the wishes of Parliament, that the expenses incurred would be legitimately expended.

Mr. MACFARLANE observed that the cost would not exceed \$100.

Major BORROWES said with regard to the cry of scarcity of horses in Ireland, he was of opinion that the evil would effect its own cure, because he did not think the Government could any step in increasing the number or breeding of horses in this country. If foreign governments continued to send for remounts to Ireland, they would have to give more for their own re-mounts; so that in this way the evil would effect its own cure.

Mr. MACFARLANE remarked that they merely wanted to have a royal commission issued, which would direct public attention to the breeding of horses in this country.

The CHAIRMAN stated that he was one of a deputation who had waited on the late Lord Carlisle on this point, when his Excellency told them that if any action was taken by the Government, it would refer only to the question of re-mounts.

Major BORROWES said they would find before three or four years were out that the Government would be obliged to increase the price they gave for re-mounts by a considerable amount.

The Secretary was directed to summon the horse-breeding committee together, for the purpose of taking immediate action in the matter.



The challenge cup which had some time ago been awarded to the Duke of Leinster was returned by His Grace, to be in future a perpetual challenge cup for the best description of labourers' cottages in Ireland.

The following gentlemen were balloted for and unanimously admitted members of the society: Croisdale Molony, Kilnacrandy, Co. Clare; and D. H. Cooper, Hanover House, Carlow.

The half-yearly general meeting of the society was held the same day, in the reading-room of the Farmers' Club. The Hon Chas. J. Trench was called to the chair.

The minutes of the former meeting having been read and confirmed,

Captain THORNHILL, secretary, read the half-yearly report, as follows:

"In presenting a report of the proceedings of this society during the present half-year, your council are enabled to record a considerable addition to the list of members elected during that period.

"The annual national cattle-show for 1868 will be held for the province of Ulster at Londonderry, during the last week of August next, and will occupy the site of the successful exhibition of 1868. From the untiring zeal displayed by the local committee up to the present time, your council anticipate a large and influential meeting.

"The society's exhibition of 1867, in Stephen's-green, so interesting in its various departments and carried out with so much energy and perseverance, proved most remunerative in a financial point of view; and the local committee, after payment of all the attendant expenses, having a large surplus in hands, determined to allocate a considerable sum in prizes for the successful cultivation of green crops during the present year. Your council have supplemented such prizes by the amount of £50, in order fully to carry out the recommendation of the general meeting in May, 1866, to that effect.

"In reference to the proposition adopted at the half-yearly meeting of the society, in December, 1867, that a remission of taxes, firing, and gaslights, valued at £50 yearly, should be made to the Royal Agricultural Society's Club, your council have to report that such an appropriation of the society's funds having been considered unwise and illegal by a considerable section of your members, an extraordinary meeting was convened by requisition, and was held on the 6th March last, for the purpose of taking into consideration the propriety of rescinding so much of the proceedings in December as sanctioned such allowance. The club, in the meantime, having, at a general meeting of their body, determined upon relinquishing all claim to such remission of taxes, &c., it was decided at the extraordinary meeting of the 6th March that the question be referred to the next general meeting in May, and your council accordingly recommend the rescinding of such portion of the proceedings of last December as sanctioned the remission above referred to.

"Your council are happy to report that during the past half-year much success has attended the efforts of the local farming societies in connexion with the parent one in developing the agricultural resources of this country, and that the numerous prizes awarded, in money and medals, among the farming classes are productive of beneficial results, indicating that the system of mixed husbandry is again gaining ground.

"Your council has again to express regret that more general competition has not taken place in connexion with the prizes offered for newly-erected labourers' cottages, three parties only competing in Leinster—A. Kavanagh, Esq., M.P., Mrs. Bomford, and Robert Cosby, Esq.; one in Munster—Lord Mounteagle; and for improvements in already-existing labourers' dwellings, one in Leinster—Lord Digby. Lord Digby, the Hon. King Harman, and Robert Cosby, Esq., are competitors in drainage for 1867-8.

"They have also to report, in reference to the prize offered by his Excellency the Marquis of Abercorn, for the best design of a labourers' cottage, to be erected for a limited sum, that a very large number of plans have been submitted to a committee of their body, but that, although many of these designs evinced much careful consideration of the subject, the cost of construction, according to the average rates of building in Ireland, would be in excess of the appointed limited outlay. Measures have been adopted, with the sanction of his Excellency, to allow the competition to remain open to the 1st September, 1868.

"In accordance with your 9th rule, ten members of your council retire, but are eligible for re-election. A correct list of members whose subscriptions have been paid to 1st of April has been prepared, and forwarded to each member entitled to receive it.

"Annexed is a statement of receipts and expenditure for the past year, as audited by Messrs. O'Connor and Molloy, who kindly gave their services gratuitously.

"Signed, "GEO. HODSON, Bart., Chairman.  
"J. BADHAM THORNHILL, Sec."

#### ANNUAL STATEMENT OF THE RECEIPTS AND EXPENDITURE OF THE ROYAL AGRICULTURAL SOCIETY OF IRELAND FOR THE YEAR 1867.

Dr.	£	s.	d.
To balance to credit last account...	557	17	11
Subscriptions received from 864 members, up to May, 1868 ...	1,263	10	0
Interest—viz., on cash in funds (i. e., £5,585 6s. 9d.) ...	£164	15	4
Ditto on cash in bank on deposit ...	16	3	1
Cash from Local Committee of the Dublin Show, 1867 ...	180	18	5
	677	5	0
	<b>£2,679</b>	<b>11</b>	<b>4</b>
Cr.			
Money premiums to local societies ...	210	0	0
Medals for year ...	129	11	6
Secretary's salary ...	250	0	0
Accountant's ditto ...	80	0	0
Chemist's ditto ...	100	0	0
Mr. Callanan's gratuity ...	29	18	0
Hall-porter's wages ...	26	0	0
Printing and advertising ...	34	8	6
Stationery and bookbinding ...	10	11	0
Postages ...	20	2	0
Rent and insurance ...	135	15	6
Furniture, including safe (iron) ...	18	13	10
Sundries ...	5	3	2
Judges' expenses to and from Dublin Show ...	192	16	3
Clerk of the yard (Mr. Corrigan) ...	10	0	0
Secretary's travelling expenses ...	18	11	0
Prizes paid ...	1,143	9	2
Printing, advertising, and stationery ...	86	13	3
Badges ...	3	5	6
Judges of cottages (travelling expenses) ...	29	10	7
Prizes for cottages (in lieu of medals) ...	30	0	0
Estimating prices from plans, for the Cottage Committee, by Mr. Doolan, measurer ...	7	11	3
Judges of drainage (travelling expenses) ...	9	13	8
Balance to credit ...	97	18	2
	<b>£2,679</b>	<b>11</b>	<b>4</b>

Examined, and found correct.

CHARLES C. VESSEY.  
H. J. MACFARLANE.  
PHINEAS RIALI.

21st May, 1868.

We have carefully examined the above accounts, and compared the vouchers with the items, and we find them to be perfectly correct.

VAL. O'B. O'CONNOR.  
ROBERT MOLLOY.

Lieut.-General HALL moved the adoption of the report, which appeared to him to be very satisfactory indeed.

Sir GEORGE HODSON seconded the motion, and in doing so observed that it was unnecessary that he should refer particularly to any topic noted in the report which has just been read. It might be thought suitable, however, that he should say a word or two in reference to the paragraph which related to the appropriation of a portion of the society's funds for the use of the Royal Agricultural Club. That paragraph had been carefully considered and attentively worded, and he sincerely trusted that the meeting would adopt it without discussion and without dissension. There had been a good deal of feeling displayed in the matter, but he did not think there was anything in the paragraph with which the most sensitive could find fault. The club, they were aware, had relinquished the claim put forward for an allowance for rent and taxes, and the council had considered it proper to accept their offer, declining to receive such allowance; and they now wished them to

adopt the report, which rescinded, to a certain degree, so much of the proceedings of the former general meeting as sanctioned that appropriation. The adoption of it, he thought, would restore to them a good deal of peace and tranquillity, and give effect in the main in inducing Lord Clonbrock and his co-trustees to continue as trustees of the society (Hear, hear). It would also enable them to approach with better attention the main objects which the council and the society had in view—that of promoting agricultural science in this country.

The CHAIRMAN said, before he put the resolution, he thought it was a question whether it should not be followed by a resolution absolutely rescinding what had been done at a previous meeting.

Mr. BYRNE conceived that if the motion for the adoption of the report was put from the chair, it should be acceptable to all parties; but, if anything else were put forward, there might be others who would canvas it out of doors. The paragraph was drawn up in order to promote that harmony and kindly feeling which it was right and necessary should exist in a society like that. The club had agreed to those terms; and if the acceptance of the report, in its present shape, was acceptable to the meeting, it would tend to the cordial agreement of parties outside.

The CHAIRMAN remarked that it appeared to him, as Chairman, that it was not quite satisfactory, inasmuch as some members who had not paid their subscriptions might not do so, as they would say that the resolution had not been rescinded. A short resolution, rescinding the previous one, was, he thought, necessary.

Sir GEORGE HOBSON wished to say, as a member of the council, that it was not in the province of the members to do more than recommend the general meeting to rescind the resolution in question. They had no power to do anything

final in the matter. They, therefore, sent it forward as a recommendation; and if the report was adopted, he did not see why it should not be considered sufficient to answer all the purposes.

Sir JOHN DILLON insisted that the resolution referred to should be decidedly and absolutely rescinded by the meeting. He had been always opposed to it from the beginning.

Mr. WALDRON said the question before the chair was the adoption or rejection of the report. It might be competent for anybody afterwards to move such a resolution as that which the Chairman spoke of. He apprehended that their duty was to adopt the recommendation of the council or not, as they thought fit.

The CHAIRMAN then put the resolution, which was carried unanimously.

Captain VESSEY moved that, in compliance with the recommendation of the council, the resolution relative to an allowance of £50 to the Agricultural Club, passed at the half-yearly general meeting, be rescinded.

Mr. HANS WOODS seconded the motion, which was carried.

Mr. WOODS proposed a vote of thanks to Messrs. Molloy and O'Connor, for having kindly audited the accounts of the society free of charge.

Sir JOHN DILLON seconded the resolution, which was passed.

On the motion of Major Borrowes, seconded by Mr. George Woods Maunsell, Messrs. Townsend, Millward, and Byrne were appointed scrutineers to take the ballot for the election of members of the council.

The following is the result of the ballot: Hans H. Woods, Sir John Power, Bart., R. M. Carden, P. J. Newton, Lord Powerscourt, John Borthwick, C. U. Townsend, Lord Lurgan, Sir Richard Musgrave, S. A. Richards.

## EAST SUFFOLK CHAMBER OF AGRICULTURE.

A meeting of this chamber was held at Ipswich. The president, Mr. F. S. Corrauce, M.P., was in the chair. The attendance was limited, there not being 30 members present.

Mr. W. JOHNSON (Boyton), vice-president of the chamber, introduced the first subject—The Condition of the Agricultural Labourer. He said: At a Conference held in March last in Willis's Rooms upon the condition of agricultural labourers a series of resolutions were passed for the proposed remedy of imaginary grievances, and with those resolutions farmers generally differed. The object of the meeting was to take into consideration three questions: "What are the causes of the unsatisfactory condition of the agricultural labourer?" "What are the best means calculated to improve that condition?" "If by the formation of a society, then upon what plan should such society be constituted, and what steps should be taken to form it?" In the first place, he was not disposed to admit that the present state of the agricultural labourer was so thoroughly depressed as was represented. He was prepared, from an experience of more than 30 years in this county, to state, without fear of contradiction, that he never knew the agricultural labourers in East Anglia in a better position than at the present time. At the same time he was unwilling that it should be inferred that he was not willing to enter into the consideration of the desirability of improving the comforts and condition of the agricultural labourers, for he would be glad to do anything to improve their condition; but he did not wish to admit that they were so oppressed and persecuted as it was endeavoured to be made out. The Rev. Canon Girdlestone stated that the poor people were expected to bring up their families upon 7s. or 8s. or 10s. a week. They knew nothing of such wages in Suffolk, and consequently the question of wages did not apply to their case. Canon Girdlestone said that he had been instrumental in raising the wages from 7s. to 10s. a week; but in this part of the country they ranged from 12s. to 15s., and therefore with the question of wages they had nothing to do. Mr. Johnson then referred at some length to the proceedings at Willis's Rooms, and proposed a resolution condemnatory of the resolutions passed, which, after some observations from the chairman, was taken as carried.

The Hon. Sec., Mr. H. BIDEELL, said he had received a long letter from Col. Adair, upon the subject of County Financial Boards, from which he read an abstract.

Mr. JOHNSON said: It was unnecessary for them to discuss the details of Mr. Wyld's very voluminous bill, it having been withdrawn, and they had simply to consider the principle of the measure, which would require very few words, the justice of the attempt having been admitted by the Government, although the Bill was rejected and a committee appointed to inquire into the working of county business generally. Committees were very slow travellers, and very often were appointed for the purpose of postponing measures, so that nothing more might be heard of them, and consequently it was necessary that this committee should be reminded that the country was watching their proceedings. Hitherto county business had been confined to the county magistrates, and he was not going to say a word of complaint or disparagement of the conduct by the magistrates of that business, for he believed they were anxious to investigate and control the expenditure to the best of their judgment; but as the county expenses affected real property generally, the ratepayers claimed a right to superintend them. The question was, what was the most advisable step to take? He would not propose anything ponderous or complicated like Mr. Wyld's Bill, because if there were a large financial committee the result would be too apt to be a great deal of talk and very little work. He at the same time believed the magistrates would gladly accept the assistance of other parties, men of judgment and experience, to co-operate with them on financial matters. He took up this question with no feeling of opposition to the magistrates, and would much regret that the magistrates should imagine that there was any feeling of antagonism to them, for the desire was simply to co-operate with them in solving the different problems that might be brought before them. They had been told that these matters were purely landlords' questions, and that all charges on land finally fell on the landlord; but he had yet to learn how to divide the interests of the tenant and the landlord, for he considered they must be identical. It was a great mistake to attempt to divide the interests of landlord

and tenant as to divide those of the employer and the employed, and he regretted that there were not more landowners members of that chamber. He moved

"That this Chamber views with approval the principle embraced by the bills upon the County Financial Board. The application of that principle is, at present, a matter of apparent difficulty; but this Chamber begs to record its opinion that these difficulties are not such as ought, in its opinion, to present an insuperable obstacle to the just settlement of this question."

Mr. R. L. EVERETT said, as representative of that chamber, he was present at the last meeting of the council of the Central Chamber in London when this subject was discussed. One gentleman strongly condemned the reference of the subject to the House of Commons to a committee, as shelving the question; but Mr. Wyld denied that such was the case, and it seemed that Mr. Wyld had been so unfortunate as to draw an impracticable bill, and one the details of which his own friends did not like.

Mr. G. TOMLINE, M.P., believed that if the system were changed it would not be found more economical; but if it should not be more economical, still they would have the satisfaction of spending their money themselves and knowing how and why they spent it. But he did not stop here—he went further, and said the magistrates would thank them for giving them the power (if it should turn out that by Financial Boards they did give it) of resistance to those central authorities to which allusion had been made—power of resistance to government inspectors and government departments, who liked to throw every burden, even those which were almost imperial as well as those which were local, upon the rate-payers. He had been told by the Lord-Lieutenant that a circular had been sent round to Lord-Lieutenants asking their opinion whether the magistrates would consent to borrow on the security of the county rates a very large sum for the purpose of building barracks for the militia when called up for their training, and stating that when those barracks were built with money borrowed on the security of the rates, then Government would consent to pay a rent for them. But Government had no power to pay a rent, because the money which was to be applied in payment of rent must be voted by Parliament. However, this secret circular had been sent to Lord-Lieutenants asking their opinion as to the probability of the magistrates assenting to the imposition of this new burden. Now if that circular had been sent by the Home Office to County Financial Boards, if they existed—he would not pre-judge the question and say whether they would assent to the proposition or dissent from it—the rate-payers would be treated with a certain degree of courtesy and respect in their representatives being asked whether they were willing to have a new burden imposed on them, and whether they were inclined to borrow a large sum for the erection of those barracks, the expense of which ought not, in his opinion, to be thrown upon one species of property, the owners of that species of property having no power at this moment to criticise or condemn this new demand. There was proof enough that this secret system of departmental government was burdensome upon rate-payers, and magistrates might thank them if by esta-

blishing County Financial Boards they gave them the power of saying "no" to such demands. In West Suffolk, he saw by the newspapers, the magistrates were acting with great courage in respect to the gaol inspector, that a new gaol should be built, and he said the establishment of County Financial Boards would do the magistrates a service in giving them the power to say "no" to burdens, the imposition of which they could not now resist. The circular he had alluded to was an argument for Financial Boards, &c. He did not think the Lord-Lieutenant, who was by his office the representative of the sovereign, was a proper person—nor even would the High Sheriff, as representative of the freeholders, be the right person—to communicate with on the subject of the finances of the county. Let them have a Financial Board, who would know what was proposed, who would openly discuss it, and who might, as they pleased, say "Yes" or "No."

Mr. HERMAN BIDDELL could not understand why, if there was no opposition to the principle involved in Mr. Wyld's Bill, but only objection to the manner in which it was drawn, the whole matter should have been referred to a committee. It appeared to him the only principle involved was, "Are the ratepayers to be represented in determining upon the collection and disbursement of county funds? or is it to be left in the hands of those who have for years had the management of it?" All agreed that the ratepayers should be represented, and why should it be referred to a committee to inquire into the working of certain matters? The ratepayers never asserted that the funds were misapplied or mismanaged; all they said was that they were altogether disregarded in the matter. He could not see the necessity for a committee, and regarded it as an attempt to shelve the matter.

The PRESIDENT said he must call their attention to the circumstance that they had only discussed the principle of a bill for establishing County Financial Boards, and that the details remained untouched. They had not heard anything from anyone with reference to what such a bill ought to be, and there was a wide difference between the mere admission of a principle and the determination of details. He was not a Government apologist, but they would allow him to say a few words upon the debate on Mr. Wyld's bill. There was an entire unanimity among the speakers with reference to the principle, but scarcely one speaker approved of the way in which it was applied. The bill was cumbersome; it went into a great deal more than Parliament would, at one sitting, be prepared either to discuss or decide upon, and it opened all sorts of principles. Mr. Biddell had said that committees were very often the grave of good measures, but they were also often the grave of very bad ones, for of all bills introduced into Parliament the larger proportion were utterly to be condemned, and for one good bill ten were introduced so bad that if their authors had been tolerably discreet they never would have seen the light. Therefore he approved of sending the bills to a select committee, more especially such a bill as that in question. When they came to examine the details they would find this was not such an easy thing to apply.

After some further discussion the resolution was assumed to be carried, and the meeting broke up.

## SOMERSET CHAMBER OF AGRICULTURE AND COUNTY ASSOCIATION OF RATE-PAYERS.

The fourth general meeting of the members of this association was held at Bridgwater, when Mr. J. P. BROADMEAD, of Enmore, was voted to the chair.

The CHAIRMAN said, that this was not merely a meeting of the Chamber of Agriculture, but also of the "County Association of Ratepayers," and consequently it affected all classes of persons who were liable to pay rates. He repeated they must be very thankful to the gentlemen connected with the Yeovil Board of Guardians for having moved in this important matter. They might not be prepared to concur in all the minor details to which the chamber had committed itself, and, moreover, they were not asked to do so. The promoters of the association merely said if they could agree that the general

principles laid down were sound and good then they could join it; and he thought quite the same. It had been thought by some that it was merely the claims of the Chamber of Agriculture which they met to advocate; but such was not the case—they were also an association of ratepayers, and as such dealt with matters affecting every class of persons. If they considered the system upon which the poor-rate was levied at present, and what was really proposed by this association, they could not fail to see that those who are now unfairly burdened would be greatly relieved by the personal property of the country being called upon to contribute, as it ought to do, towards the rate for the relief of the poor, and all those various other charges which he had named. They did not ask to be

relieved of any burthen which it was right and just for them to bear; they wanted to have everything fair, and that was the object of this meeting. Some persons argued that money in the funds should be exempted, because at the time the funds were established money was required for carrying on a war, and there was a kind of compact that the capital so invested should be free from rating. But at that time we had no police or highway rates, and many of the barthens now complained of had not been imposed upon them. Therefore, these things being altered, all things might be altered. He urged them to move in this matter, for if they did not they could not expect that those who were not at present rated would come forward voluntarily and offer to bear their proportion of these charges. They might feel that in justice they ought to do so; but of course they would say, "Let those who are interested in it move in the matter; we are not going to do so." If they did not put their shoulder to the wheel they would not get relieved. An impression seemed to prevail that they wanted to transfer all these burdens to trades and manufactures; but it was not so, for by including all personal property in the assessment they would be benefited rather than oppressed. After all it was but fair that those who obtained their wealth from the labour of the poor, should, when these had become indigent and unable to work, help to support them; whereas at present the poor, whose best labours were employed in the aggrandisement of the wealth of the manufacturing interest, were thrust back upon the landed interest for support, whilst those who had reaped the advantage of their labour contributed nothing towards the rate. He appealed to the meeting whether the system was not an unfair and unreasonable one?

Mr. ANDREWS, as secretary of the association, explained more fully the objects and purposes of the meeting.

Mr. JOHN TRASK proposed "That this meeting fully approves and endorses the resolutions passed by meetings of this association held at Yeovil, Taunton, and Bristol." He remarked that the resolutions referred to had been circulated, and no doubt every one present was conversant with them.

Mr. JOHN SAMSON seconded the resolution, and it was carried by acclamation.

Mr. T. BAKER, of Boroughbridge, proposed "That this meeting pledges itself to use every effort to make the objects and purposes of this association known throughout the county of Somerset in accordance with the circulars and resolutions sent to the guardians of each parish, and addressed to the ratepayers." He moved this resolution because he highly approved of the movement and the broad principles upon which the association was based. He believed the time had come when the rating system should be thoroughly and completely overhauled and re-adjusted.

Mr. JAMES KINDER, in seconding the resolution, hoped that the matter would be taken up in thorough earnestness, and he had no doubt their efforts would be crowned with success.

The motion was unanimously carried.

Mr. R. S. PITTARD proposed, "That in the opinion of this meeting a persistent attempt should be made by the chairmen and committees of the associated ratepayers in each union to get every town and parish in their union represented by a ratepayer, and to canvass for members and subscriptions."

Mr. J. STUCKEY, of Drayton, seconded the resolution, which was carried.

Mr. H. G. ANDREWS proposed, "That in the opinion of this meeting the ratepayers of parishes, independent of subscriptions from large proprietors, should attempt to raise the income of this association to £1,000 a-year, and that this can be done with ease in a field consisting of 510 parishes."

Mr. REYNOLDS seconded the resolution, which was carried by acclamation.

Mr. JAMES FRY proposed, "That the secretary be requested to convey to Sir Massey Lopes the thanks of the Somerset Chamber of Agriculture and of this meeting for the able way in which he has brought the question of Local Taxation before the House of Commons."

The motion on being seconded by Mr. FRITH was carried.

## THE PENWITH AGRICULTURAL SOCIETY.

The annual exhibition of the Penwith Agricultural Society, which has now attained the age allotted as man's sojourn upon earth—three score and ten—has been held at Treneere, Penzance. A finer show of cattle and horses for a local meeting has rarely been seen; and some good judges expressed it as their opinion that it would take some unusually fine cattle to beat the first-prize shorthorns, exhibited at the above show. In making their awards to the horses, the judges had a most arduous duty to perform, and they were a considerable time before they succeeded in awarding the prizes to their own satisfaction. The horses were tried in every way, and in the presence of a large number of spectators, and it was generally admitted that they gave their fiat in favour of first-class horses. The show of pigs was certainly not large, but what was deficient in quantity was in every respect made up in quality. The contest in this department was between Mr. E. Bolitho and Mr. Sydney Davey, two gentlemen who have competed in former years. Last year the first prize was carried off by Mr. Bolitho, and this year the same gentleman was again successful, Mr. Davey being second; but he was disqualified from taking the second prize in consequence of his having won the same prize last year. There was an excellent exhibition of sheep, and the Leicester rams were especially noticeable for their size and beauty. The judges were: For cattle, sheep, and Pigs—Messrs. Luke Bice, St. Enoder; Jabez Steeper, St. Columb; and Marshall, Maidstone, Kent. For horses and implements—Messrs. J. Burgess, Barncoose, Illogan; Whiteer Laming, Treveethoe; and R. Quick, Trewellard St. Just. The following were the

### A W A R D S.

#### CATTLE.

North Devon Bulls.—First, G. Mason, Truro; second, J. Burgess, Barncoose.

Shorthorn Bulls.—First and second, Hosken & Son, Hayle; third, S. Harvey, Sennen.

North Devon Bulls, calved since January 1st, 1867.—First, T. Stevens, Wendron; second, G. Mason.

Shorthorn Bulls, calved since January 1st, 1867.—Second, Hosken & Son.

North Devon Cows.—First, J. Burgess; second, J. Mason.

Shorthorn Cows.—First and second, Hosken & Son.

Cows of the Guernsey or Jersey breed.—First, R. F. Bolitho, Ponsandane; second, H. Hodge, St. Levan.

Cows of the cross-breed.—First, E. Bolitho, Trenuggo; second, Rev. M. N. Peters, Penzance.

Two-years-old Shorthorn Heifers.—First and second, Hosken & Son.

Heifers of the Guernsey or Jersey breed.—General Tre-menhoe, Boscathnoe.

#### HORSES.

Stallions calculated to improve the breed of saddle horses.—First, W. Hawke, Budoek (Sea King); second, J. Yeo, Bod-min (Gazna).

Stallions calculated to improve the breed of horses for general purposes.—First, Hosken and Son (Forester).

Stallions calculated to improve the breed of cart-horses.—First, H. Laity, Clowance (Goldfinder); second, H. Roberts, St. Hilary (Oxford).

Brood saddle mares with foals.—First, J. Abraham, Crowan; second, G. Eustice, jun., Hayle.

Three-year-old fillies or geldings for the saddle.—First, S. Harvey, Trevar; second, N. Hoskins, St. Allen.

Three-year-old fillies or colts for general purposes.—First, Branwell and Sons, Penzance.

Two-year-old colts or fillies for the saddle.—First, W. Jelbart, Roborough, Devon.

Two-year-old colts or fillies for general purposes.—First, J. Bone, Penzance.

Cart-mares with foals.—First, Branwell and Son; second, J. Pearce, St. Buryan.  
 Yearling colts or fillies for the saddle.—First, H. Laity.  
 Yearling colts or fillies for general purposes.—First, J. Chapple, Sancreed.

## SHEEP.

Leicester rams.—First, J. Rosewarne, Nanspauker; second and third, J. Thomas, Phillack.  
 Leicester hogg rams.—First, second, and third, J. Rosewarne.  
 Five Leicester ewes.—First and second, J. Thomas.  
 Five Leicester hogg ewes.—First, W. Laming, Trevethoe; second, J. Rosewarne.

Southdown rams or other Down.—First, S. Rodda, Penzance; second, R. F. Bolitho.

Five Southdown ewes, or other Down.—R. F. Bolitho.

## PIGS.

Boars.—T. Thomas, Sancreed; second and third, S. Davey, Redruth.

Sows in farrow, or having had farrows.—First, E. Bolitho, Trennuggo; second, J. S. Davey.

## HUSBANDRY IMPLEMENTS.

£3, Messrs. Holman and Sons, for the best assortment of implements, particular mention being made of the corn horsehoe and the liquid-manure distributor.

## THE RABBIT QUESTION IN COURT.

A case involving the question of law as to damage to growing crops by rabbits came before the Court of Common Pleas on June 1st. Mr. Gatacre, the landlord, appealed against a decision obtained by Mr. Woodbrick, his tenant, in the County Court of Shropshire. The case stated that the plaintiff in the court below was tenant to the defendant under a lease containing a proviso excepting all game, which was reserved to the defendant as owner of the land. Adjoining a field so held by the plaintiff the defendant had a coppice, which was full of rabbits, and the rabbits got into the plaintiff's field, and so injured the crops, that in 1865 the defendant allowed him £75 as compensation for the damage done by them. The rabbits were for a time kept down, but since then they had greatly increased, and inflicted damage on the tenant's away-going crop of last year to the valued amount of £21. The defendant offered the plaintiff £12 as compensation, which he refused to receive, and brought his action in the Shropshire County Court to recover the amount of the estimated damage, and the learned judge of that court gave judgment for the plaintiff for the amount claimed, against which was the present appeal.

Mr. Archibald appeared for the appellant, and Mr. Hudson for the respondent.

For the appellant it was contended that the action would not lie, that the rabbits were *fera nature*, and that the appellant was not responsible for what they did. Suppose a fox had gone out of the coppice, was the appellant to be held responsible for its taking his neighbour's chickens? The respondent was restricted by the terms of his lease from killing the rabbits when on his land, but that was by his own agreement. He referred to "Jeffries v. Evans," 34, *Law Journal Reports*, C. P., page 51. The learned counsel was here stopped.

For the respondent it was contended that the decision of the court below was right. Half the respondent's crop had been destroyed by the rabbits which issued out of the appellant's coppice, and it was his duty to keep down their increase, so that they should not be a nuisance to his neighbours.

The Chief Justice: Are the rabbits the property of the appellant?

Mr. Hudson: The appellant ought to have kept down their increase.

Mr. Justice Byles: They are the most prolific of all animals.

The learned counsel, conceding that, still contended they had no right to consume the respondent's away-going crop, and that the appellant ought to have taken means to prevent it.

Mr. Justice Willes: Have you looked into the civil law on the subject?

Mr. Hudson said he had not. He had thought it was more a question of the common and statute law.

Mr. Justice Willes said if the learned counsel would consult the civil law, title *Actio noxalis*, he would find it had much bearing on the matter.

Mr. Hudson said he had not referred to that head of the civil law, and proceeded to contend that the rabbits were a nuisance, and had wrongfully been permitted to increase.

Mr. Justice Willes referred the learned counsel to the old case, in the year books, of the bear, which while tamed and in captivity rendered its master liable for its acts, but having regained its liberty and escaped into the woods it committed all manner of atrocities, for which its former master was held not liable. In the present case, had these been tame rabbits, the case might have been different. So also there was the case of *Dale v. Edwards*, where a person kept a dog which had a propensity to go out on his own account, and went poaching into a preserve, and killed the pheasants, where it was held that an action lay against the owner of the dog; that case had carried the law to the extreme. It seemed to him that this action was an utterly groundless one.

The learned counsel said the decision in this case was that of Mr. Josiah William Smith, a very learned judge.

The Chief Justice wished to treat the decision with every respect, but it was the decision appealed against, with no authority to support it. The appellant was not the owner of these rabbits in any sense to make him responsible. There was no contract, expressed or implied, in the lease, that he would keep in or kill down the rabbits. The judgment must, therefore, be reversed.

This decision leaves the matter in a very unsatisfactory state for the farmers, who suffer by the overstock of game, which there is no question is the case in some parts of the kingdom. Taking Essex generally we do not think the tenantry have much to complain of in this respect—though of course there are some lands that do suffer from this cause; and most of the occupiers have a little of the sporting spirit in them, and look rather with pride than displeasure to a fair stock of game in their fields and hedgerows. But in other districts of the kingdom the manner in which the game is preserved is a serious loss to the tillers of the soil, and the rabbits are a nuisance, for though the owners of the land do not care much about the latter, where these are the perquisites of the gamekeepers, as is commonly the case, those gentry look jealously and closely after them, and take care to have a good stock in hand.

This decision, which places the rabbits on the same ground as the sparrows on the house-top, is therefore a grave matter to many, and will require the serious consideration of the tenant in taking, and a liberal arrangement on the part of the landlord in letting, a farm.

## THE STATE OF AGRICULTURE IN THE UNITED KINGDOM.

At the last meeting of the Maidstone Farmers' Club Mr. ELVY read a paper on "The state of Agriculture in the United Kingdom, and its relation to the safety of the Nation." He said: I have to introduce a subject to your notice which is one that is perhaps rarely taken up by farmers. My motive in bringing this subject before the club may be deemed presumptuous; if it be, I can only plead my wish that it may lead men of far greater consequence and ability to consider the matter. I have been led to think, by seeing in *The Mark Lane Express* and other papers, the probable chance of England wanting corn before the arrival of the harvest. Now, if such an event is likely to take place during a time of profound peace, with the ports of all the world open to us, what may be the case prove if war, or any other evil, shut off our supplies? Our fleet, which has for "a thousand years braved the battle and the breeze," is indeed an arm of strength, and ever may be England look proudly to it. But not even to such a tower of strength should we trust for a supply of food. We, in some measure, resemble ancient Rome. She, like us, conquered and colonized, and at last depended for her supplies of food more on foreign lands than her own. Corn, &c., was obtained more cheaply from other soils: thus her own were neglected, and the Pontine Marshes were allowed to run to waste and become swamps. Brigands there find a shelter, and thus prove a curse to Rome, as well as a fatal misgiving arising therefrom. These evils may not be feared; but a short supply of corn is by no means improbable, and what would be the state of London, and of our great cities, with their over-crowded populations, if suffering from the want of the necessities of life? We know too well how unmanageable they are. Let us then consider how we can make ourselves as safe as we can, and try to meet an evil even before it arrives. Looking back to the state of agriculture centuries ago, we find that the United Kingdom did not produce a fifth of its present amount. Yet then it produced enough to feed its inhabitants. Now, with all its increase, it needs immense supplies of foreign grain, &c. Population has so largely increased that it has outgrown the land. Agriculture has made rapid strides, but cannot keep pace, at least with its knowledge. What are we to endeavour to do? how obtain a greater supply? As the land now yields three or four times as much as it did in the days of the Edwards and Henrys, can it not be made to yield far more, and thus ensure our safety? We have now the advantage of chemistry; we have manures from cloth and other factories: we have guano; the knowledge of herbs and plants converted into manure. We learn that by a change of crops, by keeping our land clean, fallowing is rendered generally unnecessary; by grubbing all useless hedges and trees, taking in all straggling land, we are enabled to increase our acres, as well as throw our land open to the sun and air. We have also the knowledge of machinery. Where these acts have not been done, let them be so. Let prejudice be put aside, let men be taught their own and their country's welfare; let, also, liberal leases be granted to good tenants, and let them be encouraged to render the land fruitful; let, also, rabbits and hares be placed at the disposal of the farmer. I come now to what I deem more necessary than even the before-mentioned ways of increase. Let no man talk of indolence or idleness. Our Great Creator, when he formed man, made him to live agreeably to his will; and let no fastidiousness curl up its nose at the organs God ordains him to live by. See with what infinite wisdom it is ordained that all we eat or drink, all we wear, even our bodies, can be returned to the earth, and so fructify it that it will reproduce what has been consumed. This is a fact well known to scientific men—nay, even to most agriculturists. Why, then, should not production go on with consumption? Why, because we waste and destroy the means. Thus our towns are rendered unhealthy, our rivers polluted, when that which poisons them might be rendered a blessing. It might not, in the language of the world, repay individuals or corporate bodies, but surely Government might aid in so good a plan. Deep cesspools might be formed, into which all the excreta might run. They might be covered

over to prevent smell by evaporation, and the contents sold for manure. There is a new invention—earth-closets—a plan of which I have before me. These we are now using at the Union, and I believe they will supersede water-closets, &c., in many places, and be the means of easily effecting the purpose of retaining animal manure. Dr. Monckton, in his able paper, to which I had not an opportunity till lately of paying proper attention, urges greater attention to agriculture, though he does not openly state the necessity; yet both he and Mr. Mechi bear me out in pressing it on the public. Let the farmers of England change sides with the public, and extend protection to those who refused it to them. Let us humbly look on the earth in a religious point of view. The Great Creator made it beautiful to man, and from its bosom fruits and flowers sprang, untilled, uncultivated. Man, by his disobedience, brought the thistles and weeds, and what then seemed to be a curse upon the ground. But, even then, in His severity, the mercy of God held out a remedy: "Thou shalt labour, and by the sweat of thy brow shalt thou raise thy bread." There was health and happiness in the command. Man has found health and content; he has restored, by that labour, the earth to its fertility; fruits and flowers have again sprung forth, and thus man only obeys the command of his Maker when he applies all his diligence to the cultivation of the earth.

A letter was here read from Messrs. Haynes and Sons with regard to the use of earth-closets, and the advantage which they had proved on their own premises and elsewhere.

Mr. HAYES said he could fully endorse what Messrs. Haynes said, as he had used a similar closet on his own premises, and found it to work admirably. There was still, however, great prejudice to be overcome in the matter, as he had found that labourers had refused to use them. He thought they were greatly indebted to Mr. Elvy for bringing the subject forward, not only as farmers but as Englishmen. No doubt the question of feeding the people concerned every one in the country. Mr. Elvy had touched two points in his paper which were received with cheers, and therefore he imagined his views met with their approval. The questions were the providing of greater security to the tenant, and that their lands should not be overrun with game. According to the agricultural statistics issued lately, the population was twenty millions, and the acreage under wheat three millions two hundred thousand in round numbers. He had no doubt that if expense was not considered, one-half or two-thirds of the wheat land could be made to yield very much more than it now did. But then, under present circumstances it would not pay. The tenant was suffering from want of capital, and he wanted greater security given for what he did, and the destruction of the crops by hares and rabbits avoided. No farmer would object to give reasonable and fair sport. Might the time never come when country gentlemen could not find fair sport. But there was no sport, in his opinion, in shooting down flocks of game as if they were barndoor fowls. It was frequently said that he who could make two blades of grass grow where one grew before was a benefactor to his country; and he thought the opposite was also true, that he who prevented two blades of grass growing where one grew before—that any landlord who refused fair security to the tenant, and who allowed his land to be overstocked with game—was not a benefactor to his country, but quite the contrary. He did not wish to see any legal remedies introduced, for he thought over-legislation was a great evil. But all that they could do to call the attention of the country to those defects, by making their voices heard, he thought they ought to do.

Mr. BRIDGLAND (the Chairman) said he thought the question of game was one entirely between the landlord and the tenant. A farmer took his land with his eyes open, and he made his own bargain. He thought, however, they should try to get rid of the annoyance of the ground game, hares and rabbits.

Mr. HAYES said he wished to see the land produce as much as it possibly could of the food of the people. He

spoke not as a farmer, but as an Englishman. He thought no reasonable man would object to a fair, old-fashioned style of shooting, but he did not think it was right that the farmer should have the produce of his fields destroyed by vermin.

Mr. HODSOLL said he thanked Mr. Elvy most cordially for the manner in which he had introduced the subject. He held, however, that the produce of the land contributed but in a small degree to the safety and the welfare of the nation. It really was the subdivision and distribution of labour which contributed so powerfully to the prosperity and safety of this realm. What was it that enhanced and created the value of the produce of the soil but labour? What was the flax which they produced worth until it was dressed and woven and spun? What was the value of metals—of even gold itself—until labour had been applied to it? They would pay, perhaps, two guineas an ounce for an elaborate article in silver, the raw material of which they could buy at 5s. It was true that a great deal of wealth first emanated from the soil, but it was distributed through various streams in which manufactures and commerce took part, and so built up the colossal power and wealth of this kingdom. When Mr. Elvy spoke of Rome and the Pontine marshes, and suggested that England might possibly decline in a similar manner, he forgot that the position of the two countries was entirely different. Rome never encouraged a subdivision of labour, and the extension of commerce and manufactures, so that that country could trade with others, and the wants of one nation could be supplied from the over-productions of another. He was satisfied that, as long as commerce and manufactures existed in England in their present state, we should find markets for the products of our skill, and have plenty of money to purchase of the foreigner the supplies of food we required. But he did not ignore any of Mr. Elvy's conclusions with regard to agriculture. There was nothing to prevent them from producing two blades of grass where one grew before, but everything to encourage them in doing so. Every penny we laid out in corn was so much abstracted from the wealth of this country; and, therefore, the question of liberal leases and matters of that kind ought to be considered. Mr. Hodsoll concluded by calling upon both owners and occupiers of land to assist the efforts of the West Kent Chamber of Agriculture to obtain, without further delay from the legislature, through their representatives, a more fair adjustment of local taxation, which, he said, was only secondary in importance to the increase of their crops.

Mr. T. REEVES, jun., said he fully concurred in what Mr. Hayes had said, that the want of security and the game were the two great things at the present time that hindered agriculturists from progressing. They should be encouraged

to make the land of England produce more than it does now. Mr. Hayes had said that if the present acreage of wheat were made to produce one quarter more than it has previously done, it would feed the population of the country for three weeks. But he said that the acreage of wheat planted at the present time might be made to produce three quarters per acre more than it does now, and that would feed the country for nine weeks. The question Mr. Elvy had introduced was very important as to the safety of the country. If they did not take care of themselves, they would find themselves in a position they would all deplore: and it was for the landowners to look about them and see what was for their own interests as well as for the interests of the agriculturists. They might have increased rents if they would give proper security to their tenants, and do away with their greatest curse, the game, for there was no doubt that it was a curse to them. The question of small enclosures was another matter that should receive the serious attention of them all. In his neighbourhood they saw enclosures of one, two, and two-and-a-half acres surrounded by trees, where there would be but a small patch in the middle where they could grow anything. Then the drainage question was a matter of great importance to them. He believed that the interests of the agriculturists had been too much ignored by the commercial class for many years, and if they had been better upheld by them they would have been in a very different position, and have had more money to have spent upon such improvements, while the commercial class would have been none the poorer. There had been, he considered, too great a tendency in the legislation of late years towards the commercial interests, and ignoring almost—if not entirely—the agricultural interests. The commercial interests would never serve England in the event of famine; neither their money nor goods would feed the people. If at any time the country should be at war with more than one nation, they would find it very difficult to get food for the inhabitants, and, therefore, they should stir heaven and earth, as it was said, at the present time to increase the produce of the land in the country. He was convinced that the produce might be doubled in a few years if the proper steps were taken. If they went through the country they would see all round the fields places that would not produce nearly as much as the middle would. Then came the question of hedgerows and timber, and the game that lived in the hedgerows devoured what sprang up. On that account they would find that in the Weald of Kent the produce of many farms was not one-quarter of what they might be made to yield in the course of some three years.

The discussion was continued for a short time after this, but with nothing of moment in it.

## TOPDRESSING.

At the dinner of the Wester Ross Farmers' Society, Mr. ADAM said: I may say that top-dressing is an operation with which our forefathers were little, if at all, acquainted. It is an operation that has become common in these later years through the importation and manufacture of such large quantities of portable manures. Our forefathers would have given to their land with right goodwill, I doubt not, all the manure they could scrape; but with guano, nitrate of soda, and the endless diversity of stuffs with which we are now familiar, they knew nothing; consequently, their crops, having had applied to them beforehand all the disposable manure, had to go on to harvest unsupplemented, unassisted by any addition, and depended exclusively on the sunshine and rain from heaven. We, in this respect, are now-a-days more advantageously circumstanced. In addition to the ordinary farmyard manure, we not only can give, when sowing the crop, a supply of artificial manure, but even after the crop is braided, should there be any appearance of sickness of the plant, any indication of stunted growth, a manure easily dissolved, and readily washed to the roots of the plants, we can apply with immediate and astonishing effects. In this respect, the farmer stands somewhat related to the plant as its medical attendant. His practised eye detects the first symptoms of

disease, by fading colour and lagging step; but, assured of the cause of disease, the fitting manure is applied with the desired result of the restoration of the beautiful hue of health, and of greatly-accelerated growth. The necessity of topdressing arises from the soil being imperfectly supplied with the constituents necessary for the growth of plants. Did the soil naturally contain an inexhaustible supply of all that the plants required for their growth, then manure, either ordinary or artificial, would never be needed. But it is well known that very little of the soil of our country is fitted naturally for the full development of our plants; and it is equally well-known that soil, thus naturally fertile, speedily becomes, by continuous cropping without manure, so reduced and impoverished as to exhibit only the shadow of a crop. The large proportion of the soil of our country is naturally so barren that, when improved, it will grow nothing until supplied at a great cost with plant-growing substances. Indeed, the first outlay in clearing and breaking up ground is often small as compared with the outlay necessary in bringing it into a state of ordinary fertility. But a state of ordinary fertility is not all that is desiderated. What the improving tenant is desirous of, is to have his land in that condition in which he might reasonably anticipate the largest possible yield. True, there are a few favoured spots in



such a condition as this; and to apply topdressing to these to increase the return would be the height of folly, as it would in all likelihood result in a crop early laid and in a diminished return. To apply additional manure to soil already sufficiently supplied with every necessary ingredient, is similar to bringing an additional round to the dinner-table after all the guests are choke-full. But farms in such a state as this are rarer than angels' visits. I once saw, and perhaps only once, 2 cwt. of Peruvian guano given to one acre over and above the supply given to the field generally, without the slightest perceptible difference, either at the hoeing or lifting of the crop, simply because the field had a sufficiency of manure without this addition—there being over 32 tons of turnips per acre. It is not every day that one will stumble on a farm off which a yield could reasonably be expected of 6 qrs. of wheat, 9 qrs. of barley, and from 10 to 11 qrs. of oats per acre, and these are Mr. Mechi's maximum returns. If these returns have not as yet been reached by us, is there not room for top-dressing? and if they have been reached by us, is there not need for abundant manuring still, to keep the ground in a condition in which it can continue to give a return so magnificent? Whether such returns as these can ever be reached as a general rule it is impossible to say, but I am persuaded that ere the soil be brought to its highest possible state of cultivation much has to be learned and much has to be done. The kinds of manure that are more generally used for top-dressing purposes are guano, nitrate of soda, and dissolved bones. Until within these few years guano was more commonly used, but, from the fall in the price of nitrate of soda, it is now coming more generally into use, and from its facility of solution, it is very easily washed into the soil. To specify any one kind of manure as the best for top-dressing purposes generally would be unwise and misleading. The kind of crop to which it is to be applied, and the nature of the soil in each particular case, must be fully considered, and the manner adopted thereto must be selected. To all our cereal crops, top-dressing in ordinary seasons, if wisely applied, will be advantageous. True, in such dry summers as we some time ago had, top-dressing was of little or no value; whilst in dry shallow soils it was really disastrous, greatly assisting the drought in its withering effects. But fortunately such seasons as these are the exception, not the rule, and without somewhat of the prophetic spirit cannot be foreseen. To grain crops the quantity to be applied must be carefully considered, as it now and then happens, when nitrate of soda is largely used, that there grows an abundance of straw, but the grain may be nearly entirely wanting, and when this happens the straw is inferior also. A large dose may be much more safely applied to grass, either for pasture or hay, as there is less regard to the growing of seed than to the quantity of grass sown, and hay secured. The season I have found most suitable for topdressing is spring. Even to autumn-sown wheat it is more advisable to apply topdressing in spring than when the grain is sown; for I have found, when applied in autumn, that the manure very much exhausted itself in forcing on an undue growth in winter and early spring, which was again cut down by the later frosts, leaving the wheat in a worse condition than it would have been if it had received no topdressing at all. To wheat and grass, topdressing may be applied at any time in spring, care being taken, however, that the soil be not too wet, so that the manure would be in danger of being carried away, and that there be rain either at the time of sowing or the prospect of its immediate coming thereafter, so as to secure that the manure be washed into the ground as soon as possible. Topdressing of oats and barley is more conveniently applied at the time of sowing the grain. Could present prices of grain, or something even considerably lower, be stereotyped, then there could be no question of the profitableness of topdressing; but should prices fall to nearly one-half their present amount, which we have sometimes seen, it might yet be advisable to topdress, if not for the value of the additional grown grain, yet for the increased quantity of straw raised, which would be so helpful in maintaining or improving the general condition of the farm.

Mr. MIDDLETON said that he topdressed different ways almost every kind of crop, and generally he found himself benefited by it—perhaps not so much as he would desire, but still to an extent that he considered remunerative. The soil on his farm was easily overdone, and therefore he had to topdress carefully. The mixture he preferred for corn crops was

dissolved bones and guano, with a little nitrate of soda. For hay he found guano best, with a little both of nitrate of soda and bone meal.

Mr. BETHUNE said that he generally topdressed his grass every year with nitrate of soda and guano; for his corn crop he used guano chiefly. He never tried nitrate of soda or dissolved bones for his corn crop, and of the guano he usually gave from one to two hundredweight an acre.

Mr. SIM said it had been remarked that the man who made two blades of grass grow where one grew before deserved the thanks of mankind; and he considered that the farmer who top-dressed judiciously would almost accomplish this feat. One thing, however, they all ought to learn, and that was, to mix manures properly; for sufficient attention was not usually paid to this important point. In corn crops, a great deal depended on judicious mixture, so that they might not find a handful of nitrate here, a handful of dissolved bones there, and a handful of guano in another place. He found the following mixtures answer best in his own experience: For wheat, one hundred-weight of nitrate, a half-hundredweight of Peruvian guano, and one hundredweight of superphosphate have the best and most lasting results; and I think the proper time for application is just when the fresh growth sets in in spring. Barley, of all other grains, is the most dangerous to topdress, as, if too quick and luxuriant a growth is induced, you are apt to have soft straw and a lodged crop. He found two hundredweight of best superphosphate most suitable, harrowed in with the seed. Oats, on strong land especially, repay topdressing more than any other grain, as it ensures a strong, quick growth at once, and in dry seasons prevents the crop from becoming set after the strength of the seed is exhausted. He found one hundredweight guano and two of superphosphate most beneficial. Of all crops, the most marked results of top-dressing are produced on potatoes. He found last year, by actual experiment, that it increases the crops by one-fifth; and, in talking the other day to a farmer (who has been a regular grower of potatoes for years), as to the quantity he gave to his potatoes, he told me he never used less than six hundredweight per acre; and he believed it would pay to give more. He found Peruvian guano one hundred weight, potash one hundred weight, and best dissolved bones two hundred-weight to suit him best, two-and-a-half hundredweight put down when planting, and one half-hundredweight when earthing up.

Mr. HOSACK said he had not top-dressed much; but he tried it last year, and he had nearly two-thirds—at least fully one-half—more crop on the part that was top-dressed than on the other parts of the farm. The mixture he used was a hundredweight of nitrate of soda, two hundredweight of superphosphate, and two hundredweight of salt. The soil was very strong clay. He considered that top-dressing was remunerative.

Mr. AKRES, whose experience of topdressing in Roxburghshire was asked, said that he had not yet had very much experience of it, but he had tried it on grass and oats, and in both instances the result was most extraordinary. In regard to the oats, the thing he noticed was that while the rest of the field was very dirty, the part topdressed was comparatively clean, as well as the crop produced being much heavier. By topdressing grass he found the crop improved about one-half; on the other hand, the faggage or grazing was not so good, but the second year the grazing was quite as usual, if not better. The faggage, however, was not nearly so good, especially with nitrate of soda; with Peruvian guano and bones it is not so bad. In Roxburghshire, topdressing was not carried out to a great extent, because the land had not much body in it. He mentioned as an experiment on one occasion that two acres of light soil were topdressed in the middle of a field, and another two acres, not topdressed, were carefully measured off. In the part of the field topdressed the crop became quite flat, and, on being thrashed out, it was found that there was a dead loss of six bushels an acre, compared with the piece not topdressed.

Mr. FENTON said that on all ordinary land judicious topdressing was, in his opinion, beneficial. He recommended as a good mixture two cwt. of salt and two cwt. of nitrate of soda, half-cwt. of Peruvian guano and half-cwt. of super-phosphate; he had found this suit very well both for grass and corn. He advised every one to use two or three cwt. of common salt; it strengthened the straw, and likewise kept it supple.

Mr. ROSS said he had got his farm in very bad condition, but by using a good deal of Dingwall manure he had brought

it into such excellent order that he was afraid to topdress it. He found that so long as he could grow very nearly  $8\frac{1}{2}$  quarters of wheat to the acre he did not require to topdress.

Mr. HARPER: Don't make last year a criterion.

Mr. PETERKIN said that on the farm he occupied before he came to Ross-shire the soil was generally light, and he had to apply a good deal of artificial manure. What he found answer best was a cwt. of guano, a cwt. of super-phosphate, and a cwt. of nitrate. He remembered on one occasion topdressing a grassfield of 25 acres, and giving it of nitrate alone about two and a-half or three cwt. per acre. He had an extraordinary crop of hay, perhaps not less than 300 stones to the imperial acre, and it was thinnish soil; but next year he had nothing. After that he never topdressed with nitrate alone, but used the mixture he had mentioned, along with a cwt. of salt. On the land he required to dress for oats, he often laid down the manure (got from fishing villages, &c.) in September or October, or if not then in spring, and found very great benefit arise from that method. Topdressing, he thought, had always

paid him. As he had said, a great part of his land was thin, and yet he had always had as good crops as others with better land. He considered the farmer should always topdress, especially if he had not such land as their friend Mr. Ross; on the good alluvial soil, such as many of them had about Dingwall, he considered that top-dressing was beneficial.

Mr. HARPER said that topdressing had puzzled him a good deal, and he did not think that his experience was of any authority. The year before last he topdressed a dry field with guano, super-phosphate, and bones, but he was obliged to use extraordinary measures to keep the crop down, and he partly lost it. When in Edinburgh a gentleman to whom he was speaking had told him that nitrate of soda had nearly ruined him. He had a good crop the first year, but the next he had none at all.

The CHAIRMAN then summed up, giving it as his opinion that with proper attention topdressing would pay all farmers. The result of the discussion was that guano, nitrate of soda, and bone meal were considered the best top-dressing mixtures.

## THE WORCESTERSHIRE CHAMBER OF AGRICULTURE.

At a meeting, Mr. G. Whittaker chairman, a letter was read from the secretary of the Central Chamber, requesting the secretary to forward to Mr. Jasper More, M.P., the chairman of that Chamber, the names of any gentlemen this Chamber would like to give evidence before the select committee of the House of Commons on the subject of Financial Boards.

The CHAIRMAN said he thought that perhaps they would have some difficulty in proving their case, but they wanted to show that, if they had Financial Boards, the moment any bill came before Parliament affecting the interests of the ratepayers, the ratepayers on those Boards would immediately oppose that measure, and show to the country that the bill would increase the burdens of the ratepayers.—Mr. BLICK confirmed what had been said by the chairman, and added that with regard to the Lunatic Asylum the magistrates had to carry out the provisions of an Act of Parliament, under the supervision of the Lunacy Commissioners. The management of the gaol, too, was now by a special act placed in the hands of a joint committee of city and county magistrates, subject to the supervision of inspectors appointed by the Home Office; and in a discussion at the Central Chamber of Agriculture it was stated that the magistrates had very little control over county expenditure.—Mr. ABELL remarked that that might be so, but they never found the Government and the magistrates coming into opposition. In nineteen cases out of twenty the alterations were suggested by the magistrates.—A discussion followed, in the course of which Mr. GUEST said he did not think Mr. Wyke's bill went far enough. He thought that the ratepayers could elect all the members of the Board. It was true that they had a great many good financial men sitting as magistrates, but the principle they wanted to do away with was "taxation without representation." A few years ago, at the time of the alterations at the gaol, there were magistrates put upon the Gaol Committee who were not business men. When they got such men on committees they were induced to lay out money without due regard to economy.—Mr. WEBB said that in his district the magistrates had no adequate interest in the matter of expenditure. There were two or three farmers in the neighbourhood who had to pay more rates than all the magistrates put together.—Ultimately it was agreed that Messrs. Whitehair, Webb, and Blick (secretary) be appointed to represent the Chamber.

Mr. BLICK reported that the period for which the *Chamber of Agriculture* was ordered to be supplied to the members of the Council had expired, and he wished to know if it was to be continued.—Several members of the council complained that the reports of the various meetings of the Chamber had not been reported, and Mr. WEBB proposed the following resolution, which was agreed to:—“That the secretary of this Chamber request the editor of the *Chamber of Agriculture* to supply copies of that journal for the next two months for the members of the council, and at the same time state that in the

opinion of this Chamber the reports of the meetings of the Central Chamber have not been as full and satisfactory as they could wish, and also to call his attention to the fact that meetings of this Chamber are sometimes omitted, although he has been furnished with the necessary information.”

The SECRETARY mentioned that Mr. Dillwyn, M.P., had introduced a bill “to amend the laws relating to the holding of fairs in England and Wales.” He had written for copies of the bill, which he expected in a few days.

The CHAIRMAN said that, at the last meeting, it was pretty well agreed that they should call a general meeting of the Chamber to consider the subject of local taxation. He considered it the most important subject that had come before them for some time, and he had a notion that a public meeting would go a good way towards ventilating the subject. A long conversation ensued as to the desirability of having the public meeting immediately or postponing it for some time, and this was decided by the following resolution, proposed by Mr. ABELL and seconded by Mr. SMITHIN, being carried, “That a public meeting be held this day fortnight on the subject of local taxation, at half-past eleven o'clock.”—The resolutions to be proposed at this meeting—three in number—were then discussed and agreed upon.

At the meeting of this Chamber, Mr. G. WHITTAKER, chairman,

Mr. TRINDER moved, “That this Chamber, having taken into consideration the great and continued increase in the poor-rates, and local taxation generally, is of opinion that the present system of rating is unequal and unjust.”

Mr. RUSSON seconded the resolution, which was put and carried.

Mr. B. SMITHIN moved the second resolution as follows: “That income arising from personal property ought to contribute with real property to a national rate.”

Mr. WHITEHAIR seconded the resolution, which was carried.

Mr. JAMES WEBB moved “That an income-tax, properly levied, will afford an economical means of taxation, and this Chamber will use its best endeavours to bring about a system of national rating on that basis.”

Mr. J. ABELL seconded the motion.

Mr. WILLIS-BUND objected to the income-tax being mentioned. He thought they would have great opposition to any scheme for taxing personal property, and their endeavour ought to be as much as possible to disarm opposition. The income-tax was a very unpopular tax, and the very name of it would create opposition.

Mr. WEBB, in reply, said he thought that the difficulties suggested with regard to taxing real property could be got over by a national rate being levied, and out of that the amount of the precepts of each union paid.

Mr. RUSSON supported the resolution, and contended that

they ought to be supported by both the borough and county members.

The CHAIRMAN expressed his regret that on the present occasion they had so few landowners of the county of Worcester endeavouring to pull with the tenantry for an adjustment and equalisation of the burdens upon land. It appeared to him that, although the landlords did not pay the taxes, and they fell upon the tenants, if they did not mind it would eventually fall on the landlords. He was very much surprised that the large landed proprietors of this county should take so little interest in the welfare of their tenants. It was time that all parties connected with the land should lend an assisting and helping hand to promote the one cause. There was no wish to put class against class, or tenant against landlord, and he was sure that the tenantry of the kingdom were not opposed to the wishes or the interests of the landlords, but they did feel, and felt justly, that burdens crept on time after time which had to be borne exclusively by tenant-farmers. With regard to Mr. Willis-Band's observations relative to the income-tax, he could not agree. He did not think they had anything to apprehend from adopting the income-tax; it was not for them to suggest the mode of legislation. Mr. Pearson had suggested one remedy, and Mr. Webb another, the latter gentleman suggesting that a proportional amount be paid out of the Consolidated Fund; but he would not detain the meeting by dwelling on these subjects, as it was so simple a matter. He would, however, say that he did not think the adoption of this course would at all do away with local government. This Chamber was not a political one, and he hoped it never would become political, but where matters of interest to the tenant-farmer was concerned it was their duty as a class to insist on the county members attending in their places in the House of Commons and voting on all important clauses. He thought that on Mr. Wylde's Bill to establish Financial Boards it was their duty to have attended, but the fact that only twelve county members were present on that occasion did not show that they took a deep interest in the affairs of the farmers. He thought that when any vital subject was brought forward they (the Chamber of Agriculture) would not be doing their duty if they did not write to the borough and county members to beg of them to support any measure which the Chamber might think ought to be passed.

The CHAIRMAN then put the motion, which was carried.

#### THE WESTERN CHAMBERS OF AGRICULTURE.—

At a meeting at Falmouth, during the Bath and West of England show week, Mr. Brydges Williams in the chair, the subject of poor-rates and local taxation, and a motion which Sir Massey Lopes brought before the House of Commons a short time since, were discussed, and the following resolutions passed: Sir Massey Lopes, M.P., proposed, and Mr. Whevenen seconded,—“That it is the opinion of this meeting that the direct tax of eleven millions per annum now levied under the name of poor's rates bears unfairly on income arising from real property; and that the exemption of income arising from personal property is not only unjust, but also impolitic and prejudicial to the public interest.” Proposed by Mr. H. G. Andrews, and seconded by Mr. Peter,—“That, whereas the majority of ratepayers in towns are deeply interested in the removal of the exemption from poor's rate of income arising from personal property, means should be taken through the medium of the several Chambers of Agriculture in the Western counties for uniting their co-operation in this movement.” Mr. H. G. Andrews said that at a meeting of the Somersetshire Chamber, held at Bridgwater on the 27th of May, he was deputed by that Chamber to present the following resolution to Sir Massey Lopes: “Resolved, that the thanks of this meeting be given to Sir Massey Lopes, M.P., for the able manner in which he has brought before the House of Commons the present unjust exemption from poor-rate of income arising from personal property.” The Chairman said that the meeting could not do better than follow the example set by the Somerset Chamber. He would therefore propose that the best thanks of this meeting be given to Sir Massey Lopes for having treated the subject with so much ability, and having given so much attention to that important question.

#### THE MORPETH CHAMBER OF AGRICULTURE.

The usual monthly meeting of this branch was held at Morpeth, Mr. Thos. Bell in the chair.

Mr. THOMAS LAWSON, of Longhurst Grange, having read a short paper on local taxation, Mr. J. ANGUS moved, and Mr. T. LAWSON seconded, “That this Chamber strongly recommend the council to send at least one witness to give evidence before the Select Committee of the House of Commons upon the present system of county finance, and that such witness specially bring before such committee the expenditure of £2,250 in the purchase of premises adjoining the Moot Hall Courts, for the sole purpose of removing the danger which might accrue to such courts in case the aforesaid premises took fire; the said Moot Hall Courts having always been regularly insured against fire.”

Mr. JOHN MOOR moved, and Mr. JOHN RUTHERFORD seconded, “That the local rates press severely on the landed-interest, and that this severity arises by a large amount of property of a local description being exempted from assessment, and that in consequence not one-half of the property ability within a parish is assessed to the relief of the poor.”

Mr. YOUNG moved, and Mr. MOOR seconded, the following: “That many matters of rather national than local purpose have been added to the local rates, and that such ought, in whole or in part, to be repaid to the local treasurer from the national treasury.”

Mr. RUTHERFORD moved, and Mr. ANGUS seconded, “That there is no subject of greater importance, or more immediately requiring the full consideration of the general council of the North of England Chamber of Agriculture, and that our local council members be requested to press the council to take such steps as will define what would be a more equitable assessment of local property for local purposes.”

**EAST RIDING CHAMBER OF AGRICULTURE.**—At the ordinary monthly meeting of members at Beverley, Mr. W. Bainton presiding, on the motion of Mr. Langdale, seconded by Mr. C. Dixon, the chairman was selected as a witness to be examined before the House of Commons Select Committee on the disadvantages of the present system of county finance. A very lengthy discussion then took place by adjournment, on a paper read by Mr. R. W. Parke, of Catwick, at the last meeting, relative to the present system of rating. After two hours' debate, Mr. Parke proposed “That it is the opinion of this meeting that the maintenance of the poor, highways, police, and militia falls unfairly upon real property alone, and that all property and income whatsoever ought to contribute its reasonable proportion.” Mr. A. Crosskill and Mr. Norfolk objected to a division taking place at that hour, as two-thirds of the members had left the room. The objection was overruled, and the motion was carried by 12 against 7.

**A CURE FOR THE RABBIT COMPLAINT.**—Farmers never make a greater mistake than when they allow their worst farming to be round a wood. It is precisely there that should be the largest expenditure in cake and corn, and the greatest amount of manure. Farmers ought to be made aware, if they are not now, that when we have heavily folded a piece of white or red clover, the sheep having been well supplied with cake, corn, malt combs, bran, and hay, the second growth will be so rich and rank that it will kill many sheep, whether lean or fat, and is almost certain death to lambs. This applies equally to rabbits. The same remarks apply in degree to pasture or Italian rye-grass, for I dare not sewage-manure the first or spring-growth when it is intended for sheep and lambs. They cannot stand such rich food, nor can the rabbits. A friend of mine who farms 1,200 acres told me an amusing story about this. His bailiff was desirous to have some rabbits in a grove, to which my friend waggishly assented. His fat sheep were closely folded and heavily caked round the grove, and the rabbits soon departed this life. Those who intend following my example of close-folding will do well to take note about the dying of sheep as well as of rabbits. I have a great respect for pheasants and partridges; they can hardly be too numerous, and are the farmers' best friends. Of course the pheasants should be fed in covert.—J. J. MCHT.

## HANTS AND BERKS AGRICULTURAL SOCIETY.

## MEETING AT WINCHESTER.

The show of this society took place on June 5. The entries almost in every class showed an increase, though in some few of the subdivisions there was scarcely what could be called keen competition. The cart-horses, although not numerous, included some excellent animals; and some were descendants from previous winners at these meetings. Among the mares in-foal there was nothing very striking, but the mares as a class were very good. The cattle presented some moderately good specimens, more especially amongst the cows; but perhaps the exhibition was chiefly remarkable for the sheep shown. The Hampshires were particularly noticeable for their splendid quality, and one of the judges—Mr. Saunders, of Watercombe—declared he had never before seen such sheep; and some Cotswolds sent in by Mr. Tombs, of Lechlade, Gloucestershire, deservedly attracted much attention. In pigs there was a marked improvement on the show of two or three years since as to number, variety, and quality, and that they were excellent will be at once manifest when we say that a sow sent by the Marquis of Ailesbury, winner of a Bath and West of England prize, came off here with third prize, and was, though of splendid quality, admittedly inferior to those placed before it by the judges. There were in all only three "hunting horses." The show of agricultural machinery was large; made up as this was by Tasker, of Andover; Wallis, Haslam, and Stevens, of Basingstoke; Sutton, of Shirley; Burgess and Key, of Newgate-street; The Reading Iron Works; Brown and May, of Devises; Gower and Son, of Hook; H. and G. Kearsley, of Ripon; Fitt, of Bishopstoke; Taylor, of Headbourne Worthy; Samuelson, of Banbury; Watson, of Andover; and Bradford, of Fleet-street, London.

There was a trial of grass-mowers, all the machines being drawn by two horses. The competitors were—The Reading Iron Works; Woods, of Upper Thames-street, London; Samuelson; Hornsby, of Grantham; Burgess and Key; Howard, Bedford; and H. and G. Kearsley, Ripon; but the majority of the machines entered were in the hands of local agents. One acre of clover and rye grass was cut by each, and the prizes were awarded thus:—1, Woods (48 min.); 2, Howards (52 min.); 3, Burgess and Key (76 min.). These three had an additional trial in order to place them, after being selected as the three best. The work was considered to be very good.

The dinner under the presidency of Lord Northbrook was but thinly attended, and the proceedings were rather tame; Mr. Beach, Mr. Bonham Carter, and Mr. Barrow Simonds, the three M.P.'s present, keeping carefully clear of "Farmers' Politics."

## PRIZE LIST.

## SHEEP.

**HAMPSHIRE, OR WEST COUNTRY DOWNS.**—Ewe Tegs not separated from the flock.—First prize, a cup, value 10 guineas, J. Warwick, Martyr Worthy; second, £5, G. K. Budd, Cliddesden, Basingstoke. Highly commended, J. Warwick. Commended, W. Pain, T. and M. Arnold, W. and J. Cordery, and J. Reeves.

Ewe tegs not separated from flock before 1st April.—First prize, a cup value £5 5s., J. Barton, jun., Hackwood Farm, Basingstoke; second, £5, G. K. Budd. Highly commended, W. E. Fitt, Littleton.

Ewes of any age.—First prize, a cup value £5, F. S. Schwann, North Houghton; second, 50s., J. Rawlence, Bull-bridge, Wilton. Highly commended, J. Palmer, Cliddesden. Commended, W. Pain, W. E. Fitt, and J. Wigg.

Rams of any age.—First prize, £5, R. Coles, Middleton Farm, Norton Bavant, Warminster; second, 50s., J. Moore, Littlecott, Pewsey. Highly commended, W. F. Bennett, Chilmark, Salisbury. Commended, J. Moore, and T. and M. Arnold.

Shearling Rams.—First prize, a cup, value £10 10s., E. Olding, Ratind, Amesbury; second, £5 5s., S. King, Bockhampton, Lambourn; third, £3, S. King. Highly commended, A. Morrison, Berwick, Tisbury; J. Parker, Lasham, Alton.

Ram Lambs.—£5 5s., A. Morrison; £3, L. Lewis, Chilton Candover. Very highly commended, G. Edney, Whitchurch. Highly commended, J. Moore and A. Twichen. Commended E. Cole, G. Edney, F. S. Schwann, W. F. Bennett, J. Barton, jun., and E. Olding.

Rams of any age.—First prize, a cup, value £5 5s., C. Child, Lower Wyke; second, £2 2s., J. Warwick. Highly commended, J. Warwick.

Ewe Lambs.—£3, J. Warwick; £2, G. R. Budd.

**SHEEP OF ANY OTHER BREED.**—Rams of any age.—£5, J. K. Tombs, Langford, Lechlade, Gloucestershire; 50s., T. B. Brown, Salperton Park, Andoversford. Highly commended, J. Wheeler, Long Compton.

Shearling Rams.—A cup value £5, J. K. Tombs; 50s., J. K. Tombs. Highly commended, J. K. Tombs.

Ram Lambs.—£2, Mrs. Clift, Shereborne St. John; £1, Mrs. Clift.

Ewe Lambs.—£2, J. Atkins, Barton, Peveril; £1, H. Portsmouth.

Ewes of any age.—£5, J. Atkins; £1, J. Atkins.

Ewe Tegs.—£2, H. Portsmouth.

Fat Lambs.—£3, W. E. Fitt.

## CART HORSES.

Stallions.—£5, W. H. Gale, Manor Farm, Burbage, Wilts; 50s., J. M. Earwaker, Peak Farm, Warnford. Commended, W. E. Fitt.

Two-year-old Stallions.—£3, R. Gringham, Shalden; 30s., R. Gringham.

Mare and Foal.—£5, J. G. Attwater, Britford, Salisbury; 50s., W. B. Stubbs, Tichborne, Alresford. Highly Commended, J. Atkins. Commended, Messrs. Follett.

Cart Mares.—£5, F. M. Ross, Fobdown, Alresford; 50s., F. B. Bailey, Brown Candover; £1, F. M. Ross. Commended, F. R. Hulbert.

Three-year-old Filly.—£3, J. Atkins.

Two-year-old Filly.—First prize, W. Woodward, Owalebury, Winchester.

## HUNTERS.

£5, R. P. Fitzgerald, North Hall, Preston, Candover; £3, J. Canning, Sutton Scotney.

## CATTLE.

Shorthorn Bulls.—£4, J. Atkins; £2, J. Taylor, Headbourne Worthy.

Bulls of any other breed.—£3, J. Turvil, Hartley, Alton; £2, E. Curtis, Dummer Grange.

Two-year-old Bulls of any breed.—£3, J. Atkins; 30s., W. L. W. Chute, The Vyne, Basingstoke.

Yearling Bulls.—£2, T. R. Hulbert, Old Alresford.

Cows in milk.—£3, J. Turvil; £2, Mr. C. Charlwood, Padworth Mill, Reading. Commended, W. Goodall, Winchester.

Heifers under three years old.—£2, C. Charlwood; £1, W. Nicholson, Basing Park, Alton. Highly commended, J. Atkins, J. Turvil.

Heifers under two years old.—£2, J. and M. Arnold, Westmeon; £1, C. Charlwood. Highly commended, J. and M. Arnold.

## PIGS.

Berkshire Boars.—£4, H. Humfrey, Kingstone Farm, Shrivensham; £2, H. Humfrey; £1, J. H. Clark, Attwood, Maidenhead.

Berkshire breeding Sows.—£3 and £2, H. Humfrey; £1, the Marquis of Aylesbury.

Boars of any other breed.—£3, Captain R. P. Warren, Worting House, Basingstoke; £2, J. Wheeler, Long Compton, Shipton-on-Stour. Commended, Capt. R. P. Warren.

Sows of any other breed.—£3 and £2, Capt. R. P. Warren. Commended, T. Baring, M.P.

## EXTRA STOCK.

Highly commended, Miss Taunton, Stockbridge, for shorthorn cow; commended, T. Chamberlayne, for three pigs 14 weeks old; C. Charlwood, for shorthorn heifer; A. C. Sayers, Bishopstoke, for a cow.

The Judges were—*Sheep*, T. Saunders, Watercombe, Dorset; G. Butler, Tufton, Whitechurch; and J. Allsopp, Wellow, Romsey. *Horses, Cattle, and Pigs*, J. B. Spearing, Beaham Lodge, Reading; J. White, Odham; and W. C. Spooner, Eling. *Hunters*, W. W. B. Beach, M.P., and J. Deacon, Master of the H.H. *Poultry*, J. Bailey, Mount-street, Grosvenor-square, London. *Mowing*, J. Lancashire, C. Hart, and E. Portsmouth.

## TO FALMOUTH AND BACK.

BY A PRACTICAL FARMER.

I must confess that the primary reason of my visit was the circumstance of the show being held in a part of the country I had not yet visited. I had been to Exeter and Torquay, but no further—hence my desire to pass through Devonshire into and through a considerable part of Cornwall. I was greatly delighted with my journey down. My first day's journey from Waterloo Station ended at Plymouth. The country through which I passed down to near Basingstoke is comparatively uninteresting—wild heaths, desolate and dreary; bad land, and worse farming. Energy, intelligence, and capital only are requisite to improve most of it. Much of it is undoubtedly bad enough; but in these days of abundance of capital, and no great lack of enterprise, the wonder is that it remains unproductive so long. In getting into Wiltshire I was truly struck with the remarkable improvements manifest since my visit to "The Royal Meeting" at Salisbury, 1857. It may be the season—it may be my fancy: be that as it may, I was much pleased with the satisfactory prospects everywhere before me. The crops on all sides were nearly clean (only a few yellows here and there), and almost all good. The sainfoin crops unusually plentiful, clean and good—the grass seeds very promising—the fallows forward and cleanly. In the breeding of cattle and sheep I could occasionally notice signs of crossing, or attempts, as I thought, to improve their breeds. This is as it should be. The chief end of migratory societies is to import or introduce the knowledge of departmental agriculture, and excite native energy and talent wherever they go. Beyond Salisbury I soon got into some very pleasing and fine dairy districts; but as I had no opportunity of taking notes, and evening was coming on, I reserved my remarks thereon till my return. I reached Plymouth too late to notice the district. The town itself is most interesting: The Hoe is unsurpassed by anything I have seen. My next day's run down to Falmouth was rapid and interesting in the extreme; but as I purposed taking agricultural notes of my journey on my return, and was enabled to do so, I give them as they struck me on, so quickly passing. I left Falmouth at 10.10 a.m. We were soon in the country; and at Penryn, about two miles from Falmouth, the land along our route clean and well farmed; over viaduct No 1 country exceedingly pretty; the hills very steep, and valleys narrow and deep (apparently, as we passed along, averaging from 200 to 500 or 600 yards in width, and chiefly laid upon wood frame-work), and positively looking dangerous to pass over. The fields are very small, surrounded with hedges, not cut into shape, but laid in some fashion on the banks on which they stand. More beautiful valleys; arrive at Perrenwell-station. The bridge or viaduct fine! Presently a mining district on our left; small paddocks, too small for fields, on our right, with hedges round and timber; now some heath, and over a long viaduct very high, and then through a cutting to Truro, which is beautifully situated, surrounded by richly-wooded hills and still richer valleys, deep and picturesque, with a pretty river flowing through it. The grass fields small, but rich in verdure, and nicely grazed, chiefly with dairy stock. No crops to any extent. The church on the hill to our left very imposing, and extremely rich. The stock seen along our route chiefly shorthorn cattle and Leicester sheep. The town is almost beneath us, we being upon a long and high viaduct. Some crops of wheat. We soon pass into a high and poor

country, along a bank, then a tunnel, then a bank, and into a fine country on our right, well-farmed. The stock, shorthorns and Leicesters. We keep passing fair crops and good seeds; the soil now free, now strong; the crops, wheat, oats, and barley. The soil now looks like a stony, gravelly district. Reach Grampound-road—now a slaty soil; the farming still good. A small flock of rams. Now viaduct after viaduct; then a cutting; get amongst mines, and in a higher country, and broad, with larger fields; the seeds and farming good. Now into the white clay district, i.e., "decomposed granite." Much is raised and sent to the potteries. On our left a fine country comes in, and a view of the sea to the right. We noticed that the implements seen are poor and very homely-made. Saw establishment for stamping ore, &c.; pass two viaducts, high and very fine, overlooking it. Austel: We are now getting to a high elevation, and travel nearly along the tops of hills, with most richly-wooded valleys below us, all extremely beautiful for many miles together, and nicely grazed or in meadow: the country to the right very undulating—now in a cutting, now a view of the sea; field with much garlic; now amongst the mines—tin—krolin. At Par-station: much white clay shipped from hence to various countries, as well as to Staffordshire. We pass along steep hills, and over romantic valleys, to a better country, and well grazed—to Lostwithiel. The soil clay or clayey loam, grass lands abounding in buttercups. The fields far too small, with big hedges and trees: the sheep Downs, and the cattle Devons. We pass along the country: extremely pretty grass-seeds; good Leicester and Down sheep here. The rich woods and varied foliage of a park, with nice residence near Bodmin-road station, are very fine. We are at a great elevation: country wild, and abounding with mines. The hills higher: we are dragging hard—now upon a high viaduct, about three hundred yards over a beautiful dell, extending to our left and far below us. Now another viaduct, very deep: the hills on our right not cultivated, but on our left good farming; now wild again—our viaduct over the tree-tops. Another remarkably deep—all trees under us again; another still deeper and narrower. These narrow gorges, spanned by these wondrous viaducts, created singular emotions on passing. They don't appear to average above two hundred yards in length, and the depths must be from one hundred to two hundred feet. We now go along the hill-sides: the country to the left very fine. I never saw such a succession of deep viaducts before. We arrive at Doublebois-station. We are soon along some fine land, fairly farmed, and notice Devons, Shorthorns, and I thought a small flock of Cotswolds and Cotswold lambs: again over a very fine viaduct. Liskeard: again a fine viaduct and fine hill. Menheniot station—a nice country now—Devons and Leicesters. The soil a sort of slate stony loam, of singular appearance. The roads mended with slaty stone; viaducts again long and high; country more expansive and good—quite a relief to get away from the little crowded fields, the hedge-row timber almost meeting across them, to their larger fields well-farmed and growing good crops: noticed mangolds given to some fine lengthy sheep. We soon reach St. Germans; all very fine. Now come to the river, clothed with beautiful trees to the water's edge. A park or beautiful wood opposite, all very rich. The river, along which we rattle, broad and very attractive. We soon ap-

proach Saltaash, with its wonderful viaduct. The woods and scenery of Mount Edgcombe from this point is very fine.

I would here observe that amongst the answers to many inquiries I learnt that flock-masters never wash their sheep prior to shearing, and that the average difference in price of washed wool is from 4d. to 5d. per lb. I learnt that landlordism is at its height in Cornwall. On many estates the tenant must not destroy a rabbit; no, not for his own table! nor any game; that rabbits are sold by landlords by 200 or 300 couples together; that the tenant must give twenty-four days' notice before he can plash a hedge, so that the steward, with his paint-pot, may come and mark the saplings intended to stand. I was told one telling fact. An old and good tenant applied to the steward for a couple of rabbits. *He sold him a couple, and gave a receipt for the money!* The tenant bought a handsome frame with glass front, and therein is displayed this bright specimen of landlordism. I was told that the tenants, as a class, were kept down; and although there were many good and liberal landlords, open to every improvement, yet there were "exceptions to the rule." How is agriculture to flourish under such auspices? Tenants are now becoming enterprising capitalists. Only let them the land upon proper terms: they, by their expenditure, will make it productive, and greatly to the advantage of landlord and tenant. This land of paddocks must be turned into fields. The tenant must graze sheep and cattle instead of rabbits and game, and that only for his landlord. "Property has its duties as well as its rights." I believe it is false economy. A good tenant would amply compensate a landlord in rent for destroying rabbits. I trust the visit of the Bath and West of England Society to this remote district will open the eyes of both landlords and tenants to their best and permanent interests. It is to a modern agriculture that England looks for her progress and prosperity; and landlords neglect their duty in withholding the requisite encouragements. Well, we are now in Devonshire: we leave Plymouth, and are again on "the line," and soon into a rich and well-cultivated country, the fields of fair size: the stock grazing are chiefly Devons, Shorthorns, and Leicester sheep. Have a view of Dartmoor to the left, over a beautiful valley. Now a high viaduct; deep valley very richly wooded; and a view of the sea to our right. The land rich and well-farmed at Wybridge. We noticed the beautiful establishment for making paper held by J. Allen & Sons. It is in a charming valley, crossed by a long viaduct. I again notice that these viaducts appear to be all upon timber supports. Dartmoor now close to us: it extends from hence across to Oakhampton. The country is very fine to our left, and we have a view of the sea to our right. We reach Kingsbridge-road. The country is still remarkably pretty; the fields very nice, but too small, and fences large, and trees overshadowing the land; the farming fairly done; the grazing stock, Devons and crosses of heavier-woolled sheep are seen. Near Brent we come upon the first water-meadows seen, and the fields near are much larger and much more like profitable farming. Herefords and Devons seen here, and notice large herds of dairy cows. Totnes: the country steep and abrupt, the soil on the red sandstone, or red-land. Note: Heard that the like custom, with regard to notices before plashing hedges, is customary in these parts of Devonshire. Newton: Near this station is a fine hill, covered with new houses, upon a dry red-land district; no doubt healthy for residents. We now approach the sea at Teignmouth, and from thence along the coast to Dawlish. The line of route by the sea, and along the marshes of the river, is very interesting. The marshes are good and extensive, but not equal to Romney Marsh. Exmouth stands immediately

opposite, as we leave the sea for the river side. Star-cross appears to be the home of many Exeter citizens, and is the station before reaching Exeter. We scarcely rested at Exeter; were soon in the country, which is very richly wooded. The land good red-land, and well farmed, and grazed chiefly with dairy cows and sheep, although but few of the latter are seen. The country along which we are now passing is very pretty to the Ottery-road station. There is a fine valley to the right, and the country is nicely undulating, and rich in woods; the fields much too small, and hedge-row timber very injurious, but rather better than some districts already passed. I have said very little about the crops thus far; in fact, we have not passed much arable culture, it being chiefly grazing and meadow; but the whole country appears in great freshness and beauty, having had plenty of rain, and the general report says it never looked better. We now pass Sidmouth to the right, down the valley, and enter a long cutting emerging upon a rich valley well grazed with Devons and Leicester sheep; the crops good and forward, evidencing no want of rain. Leaving the red-land we come to a district more of clay and stones, pass a very rich country on the left, but fields still far too small and sadly burthened with hedges and hedgerow timber: now a ridge of good high land, extending to the sea; through a cutting, to another charming valley, and rich to Honiton Station; again a very pretty country, overdone with wood and hedge, the grass in great plenty, the hills steep and abrupt; pass a broad valley to the left, hills to the right; the crops good and grass abundant; crops of beans seen, denoting a clayey district; enter a long tunnel; the cattle chiefly Devons, valley deep, hills like immense banks, and full of wood; no sheep seen; still small fields, and much wood. The whole country throughout for many miles appears as if it was laid out for ornamental scenery rather than profitable farming; the grass lands are not heavily stocked with cattle, and no sheep are seen; meadows plentiful. Coryton Junction: We are now passing through a region of dairy farms; much of the land is laid in as meadows; see many dairy cows, some very fine ones; a few Leicester sheep and Downs. Now in a sandstone district, the country very good, but small fields still, full of wood, and the lands not well-managed; much of the grass land under meadow. I would here remark that notwithstanding the large dairies around us, I have not seen a good modern farmstead along my whole route: nearly all are very homely, and thatched with straw, and not very extensive or commodious. Down sheep here, and a cross apparently of Herefords near. We come upon sheep-folds now—yes, and a creditable farmhouse, not thatched; but wood, wood, wood, and not much corn. Orchards now become prominent: a very pretty valley to our left, with more corn and fewer cows, but more sheep, chiefly Downs; some large flocks seen. The country varied—now red land, now clay, now red land, and well-farmed and properly grazed; a good farming near; a good dairy of cows, Shorthorns and Herefords. Pass Forde Abbey, a fine old place; mowing commenced near and making clover hay. We find more flocks, and large dairies of cows; the country a heavier soil, and fire-furrow lands; Italian rye-grass grown, beans cultivated. The dairies along this part of my route are large, varying from 40 to 70, or even 90 cows; nearly all of them are let out to dairymen at a stated price per cow. These dairymen undertake the sole management, and make their cheese and do all their business upon the farmer's premises. We now enter a portion of Somerset—Yeovil to Sherburne; very rich to our left. The Vale of Blackmore, which we soon reach, is a very fine agricultural district, and extensive; it is capital land—the arable is cleanly farmed, and the rich grass land is fairly grazed; the

tent under cereals, exclusive of wheat and oats (chiefly maize), and under tobacco. The whole acreage under wheat in all the Colonies is nearly 1,000,000 acres, whilst vines now cover 18,819 acres. The acreable yield of wheat, oats, and hay is highest in Victoria; New South Wales gives the highest acreable yield of maize and other cereals; the average yield of potatoes and tobacco is highest in Tasmania; and most wine per acre is made in South Australia.

Returns of the machines and implements in use upon farms and stations in Victoria, and of their value, are given: from these, it appears that 165 steam-engines, of an aggregate power equal to that of 1,239 horses, are used by farmers, and 23 steam-engines of 142-horse power by squatters. The total value of the plant or machines and implements possessed by farmers amounted to £804,515, whilst that in the possession of squatters is only valued at £61,182. The crops reaped and sown by machinery covered 160,649 acres, of which all but 1,100 acres were upon farms. The number of persons

employed upon farms is 42,211, and upon squatting stations 9,640.

There are 114 mills for grinding and dressing grain in the colony; 106 of these are worked by steam and 8 by water power. The amount of horse-power employed is 2,952. There are 355 pairs of stones at work, and the quantity of grain operated on was 4,000,000 bushels. The flour made during the year was 85,586 tons. The approximate value of the machinery and plant of the flour-mills was £176,425. There are now 86 breweries in the Colony, employing 648 hands and 471 horses. Nearly 9 million gallons of beer are made, in the manufacture of which 539,000 bushels of malt, 603,289 lbs. of hops, and 6,290,000 lbs. of sugar are used.

In closing this summary, it may be added that as there are stated to be officially 43½ million acres of land available for agricultural or pastoral purposes in the colony and as not 8 million are yet occupied, there is ample room for expansion of population and stock, even at the rapid rate at which they have been shown to be increasing.

## THE MISMANAGEMENT OF LANDED PROPERTY.

The following account, extracted from a local newspaper of the district in which the estates are situated, gives an account of changes made and about to be made on the Saverlake estate—a very extensive property in Wiltshire, belonging (so far as an entailed estate can belong) to the Marquis of Ailesbury. The estate is chiefly on the chalk formation, some part of it extending to the green sand and marl formations respectively, cropping out below the chalk. Part of the high lands are poor and thin clay above the chalk; the greater portion consists of thin soil upon chalk, which under high cultivation may be made largely productive, and carries sheep well, while the lands on the green sand and marl are naturally fertile, but require skilful management. This is particularly the case with the marl soil. By far the greater part of the estate consists of poor or light land; there are very large woods on the property, and Saverlake Forest is an enormous tract of uncultivated land, stocked with fallow deer and game, in which the tenants of many of the adjoining farms have the liberty of turning in some of their stock during the summer half of the year. A "run in the forest" is, however, only available for stock of a third or fourth class character, as the natural growth of the soil is not sufficiently fertile to carry anything like good stock. It may form a tolerable summer's run for sheep during the day, but, practically, the deer and game consume nine-tenths of such natural produce as there is. The terms said by the *Marlborough Times* to have been recently imposed on the tenants would seem to be about as complete examples of the mismanagement to which estates in England are subjected as could well be brought together: "THE SAVERLAKE ESTATES: Very important changes are about to take place in the relative position of landlord and tenant on the Marquis of Ailesbury's estate, consequent on the late revaluation of the whole of his lordship's property, which has been made by Mr. Carey, of Shrewsbury, on the accession of Mr. Bolam to the stewardship. Not only has the rental been, in most cases, increased, and in all re-adjusted in accordance with the valuation, but the terms of holding have been considerably altered. Day by day, during the past week, by request of the steward, the farm tenants have attended at the Saverlake Forest Office, to receive the new proposals and future terms of holding. These, with the re-adjusted rent, are to be acceded to before Lady-day next; but we are sorry to hear that the increase of rent has in many cases given great dissatisfaction, and that the future rental-change is pronounced to be excessive. The rent of some farms has been raised upwards of 35 per cent.; in one instance we are informed the rent of 130 acres has been increased by £80 or £70 a-year, and another tenant has to pay about £200 additional rent per annum. The agreement varies in many respects from the former terms. Provision has been made for quarterly payments of rent—instead of half-yearly—and for twelve months' notice to quit to be given on either side. The

agreement also reserves to the landlord all game and rabbits. The tenant is to keep the buildings in good repair; to pay one-half the cost of labour for landlord's repairs, and one-third the cost for outside painting. All the 'hay, straw, haulm, fodder, clover, tares, artificial grasses, cabbages, root crops, and other produce' are to be consumed and converted into good manure, and to be used on the land. Then there are some additional regulations as to cropping, and the 14th clause, which must surely be equivalent to additional rent, provides that the tenant keep insured to a fixed sum, in the name and for the benefit of the landlord, all farm buildings against loss by fire, in an office approved by the landlord, and to produce, when required, the policy of insurance, and receipts for the current year's premium. The occupiers of house property—particularly in Marlborough—must also be prepared for a considerable increase of rent, if we may judge from the exalted ideas we know to have been entertained of the property by Mr. Carey. It is to be hoped, however, that Mr. Carey has not based his calculations on the relative value of house property in his own county town of Shrewsbury. The trade now done, and for many years past doing, in Marlborough, will not warrant any increase of rent, nor can a grave reduction in the income of the agriculturist be made without being proportionately felt in the town." An increase of rent to such an extent as is mentioned could only be justified by giving to the tenants at the same time additional security and length of tenure; but it would seem that, besides advance of rents, new restrictions and burdens are imposed on the tenants. They appear to have held, hitherto, simply as yearly tenants, governed only by the custom of the country. This is perhaps, the least satisfactory form of a yearly holding. If there be a reasonable confidence between the tenants and the landlord—or perhaps we should say the steward—husbandry may be carried on in a moderately good manner, though it is not likely to make any striking advance. But when that simple—homely—system is departed from, and the yearly tenant is required to sign a written agreement containing an elaborate system of restrictions, game reservation, cropping, manure, and crop-consuming clauses, such as are indicated by the foregoing extract, a new system of petty and vexatious interference is inaugurated, which must soon drive from the property all the best farmers, and will assuredly deteriorate the cultivation. There is, perhaps, no greater mistake than to bring a surveyor from a different district to re-value an estate, especially when it is intended to lessen the free action of the tenants.—*The Economist*.

WORTH KNOWING.—It may not be generally known that Indian corn given whole to horses, is a very dangerous feed. I have seen two cases, one a very narrow escape from death through inflammation, brought on by this feed; the other resulted in death in a very short time this week. It swells the stomach, and is bad to digest.—R. R.



## ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.

At the annual meeting on Wednesday, June 17, the following report was read and adopted.

Premising that the year ending the 31st of December, 1867, was fraught with a larger amount of commercial stagnation and social disorganization than any which had preceded it within their recollection, the Council have just reason for self-congratulation in the well-assured fact that the Royal Agricultural Benevolent Institution, whose affairs they have the honour to direct, has not in any degree retrograded from that sphere of expansion which for eight successive years it has been gradually developing. Whatever might be thought in quarters where the "utilizing" principle is advocated, in exclusion of all prospective considerations, the Council are unanimous in thinking that too high a value cannot be set on that wise forethought which has directed, year by year, the investment of capital, not only as a means of imparting strength and efficiency to the Society, but as a guarantee for the punctual fulfilment of any engagements to which the Council, in the execution of the trust confided to them, might hereafter find themselves pledged. Pensions for life, once granted, cannot be revoked without manifest injury and injustice to the recipients. Having moreover due regard to the importance of creating new and enlarged sources of relief, the Council are strong in this conviction—a conviction based upon eight years' practical experience—that the course which has been pursued is the safest and the best for all the practical purposes for which this charity was called into existence by its excellent founder. The Institution now stands on a solid foundation, and may take a foremost place amongst those which adorn and dignify this country. During the past year fifteen pensioners have been placed on the books of the Institution, making up the total number since the first election to one hundred and six. The financial position

of the Institution is not less gratifying. The donations and subscriptions amounted to £4,860 17s. 11d., being £969 13s. 2d. in excess of the previous year. In addition to the balance of £621 9s. 4d., £507 10s. have been received from dividends, making the total receipts of the year £5,979 0s. 6d., of which £1,475 have been paid to pensioners, and £2,768 15s. have been added to invested capital of the institution, leaving a credit balance at the bankers, after payment of all expenses, of £760 8s. 8d.

Messrs. Johnson, Naish, Hudson, and Brown, retiring members of the Council, were re-elected, and Messrs. Beddell, Baldwin, and Donald Nicoll were elected in the room of Messrs. Pain, Rigden, and Sanday, who also retired by rotation. After some other formal proceedings, the Council proceeded to the election of pensioners. The following are the names of the successful candidates: Male pensioners at £26 per annum—Edmund Painter, John Steel, Thomas Barnett, David Unthank, William Turvill, Charles Theedam, Josiah Jerrard, and William Pingley. Married pensioners at £40 per annum—Walter and Hannah Mansfield, Thomas and Hannah Hughes, and William and Anderson Des Forges. Female pensioners at £30 per annum—Elizabeth Sandon, Jane Hulls, Ann Harris, Ann Carter, Sarah Wheeler, Elizabeth Clarence, Sarah Brett, Mary Needham Brett, Arundell King, Jane Haviland, Rebecca Davie, and Eliza Jones. The following orphan children were also admitted: Andrew Anascomb, Earl Spencer, Thom Giddings, Edward M. Stanford, Annie Gearing, Louisa C. Grant, Elizabeth Back, Ann C. Fell, Ann Eliza Adams, Elizabeth Belliss, Sarah Polley, Kate Spencer, and Mary E. Hall.

The thanks of the meeting were voted to Viscount Enfield, M.P., for his kindness in presiding at the anniversary of the Institution, and to Mr. Shaw, the Secretary.

## STAFFORDSHIRE CHAMBER OF AGRICULTURE.

A meeting of this Chamber was held on Saturday, June 13, at Stafford; Mr. R. H. Masfen presided, and there were about twenty members present. The first business on the circular convening the meeting was as to "the appointment of well-informed witnesses to give evidence before the House of Commons Select Committee upon the disadvantages of the present system of county finance, and as to the best machinery for establishing a representative control of the expenditure."

The CHAIRMAN said he was rather at a loss to know whom to nominate to represent them on such a question.

Mr. J. NEVILLE (Haselour) said that so far as this county was concerned they had reason to be satisfied, the financial board being composed of thorough business men who would not allow any unnecessary expenditure of the funds over which they had control. But there were many counties which were not so well represented, and the funds of which were not so well managed; and as the principle propounded was a good one, that Chamber ought to assist in obtaining such a measure as was thought desirable to improve the working of the present system.

Mr. MAY expressed a similar opinion. Though he did not think there was any unnecessary or wasteful expenditure of the finances of this county, he considered that they ought to be ready to assist others who were not so favourably circumstanced. He suggested that they should request Mr. Startin, of Exhall, near Coventry, to give evidence before the committee. Mr. Startin was a gentleman well-acquainted with financial matters, and a short time ago he read a very excellent paper on "The Rating Question" at the meeting of the Midland Farmers' Club, at Birmingham. Very probably Mr. Startin might be nominated by the Warwickshire Chamber, but even if he was it would be strengthening his hands if nominated to represent this Chamber as well.

The CHAIRMAN referred with disapprobation to the course

which he said had been taken by the magistrates with reference to the dissolution of the Burton Highway District. When the ratepayers petitioned the magistrates to allow the district to be dissolved, the magistrates would not listen to them. The subject was brought forward a second time, and with a similar result, although no magistrate in the Burton district would second Mr. Bass's amendment in opposition to Mr. Lyon's motion.

Mr. MAY said the Chairman was in error. The magistrates at the last Quarter Sessions granted, by a majority of 21 to 10, a provisional order, which was all they could do.

Mr. May's suggestion was agreed to, and the Secretary was instructed to write to Mr. Startin to know whether he would consent to represent the Chamber.

The next business on the programme was to appoint a maltster, brewer, or other person of the consuming interest, to give evidence in favour of the repeal or transference of the malt duty.

Mr. MAY remarked that they should endeavour to select some gentleman who was not only practically acquainted with the subject, but who, being in an extensive way of business, would carry some weight and influence with him in whatever evidence he might give. It was pretty evident that the Government would not sacrifice the revenue arising from the tax altogether, amounting as it did to six millions annually, and he thought the aim of the committee would be to transfer the tax from malt to beer. They wanted some one, therefore, who would give evidence favourable to such a transfer, and he did not imagine that the brewers as a class were so favourable.

Mr. NEVILLE said they were decidedly unfavourable.

The names of several gentlemen were mentioned, and amongst the rest that of Mr. M. T. Bass, but at the same time an opinion was expressed that he would be opposed to the transfer of the tax from malt to beer. It was decided that

the Secretary should write to Mr. Bass and inquire what his views were on the matter, and that in case they were favourable he should be asked to give evidence.

Attention was next called to a public meeting proposed to be held at Leicester, on the Friday of the show week, of the members as of the various chambers of agriculture, one of the subjects for discussion being, "The Pressure of Local Taxation upon Real Property."

The CHAIRMAN and Mr. PERRY said the subject referred to was the great question of the day, so far as the agricultural interest was concerned.

Mr. NEVILLE hoped that at the meeting referred to the question would be taken up in an earnest manner, for one expense after another was being thrown upon the rates, and there was only one species of property that could bear the burden.

## FOREIGN AGRICULTURAL GOSSIP.

The Hohenheim Agricultural Institute in Wurtemberg has just celebrated the fiftieth anniversary of its foundation. Herr von Goether presided over this celebration, which collected an imposing number of old pupils of the Academy, among whom were 202 Wurtembergers, 10 from North Germany, 7 Austrians, 5 Bavarians, 4 Swiss, 1 Russian, 7 from Baden, and 2 representatives of the new world. After the songs, without which no *fête* would be complete in Germany, and after the customary speeches and felicitations, when the pupils had welcomed those who had preceded them in their career, and when the company assembled had visited the workshops and collections, the sound of a gong gave the signal for a *déjeuner*, which was served on the terrace before the château. Neither the King nor the Academy of Hohenheim nor its director Herr von Werner was forgotten in the toasts which terminated the repast; and Herr von Goether was not the least applauded of the orators when he assured the joyous meeting that all plans for the extension and improvement of the old and celebrated institute would meet at his hands, as a minister, with a reception all the more sympathetic, as he was sure beforehand of the agreement and good-will of the King. This good-will was, indeed, proved by the presence of his Majesty, who, accompanied by the Queen, arrived subsequently, and caused to be presented to him some of the foreigners who "assisted" at the interesting agricultural jubilee, and then proceeded to the trial field, where a reaping machine and other apparatus were tried before him. This unexpected visit was greeted with enthusiasm by those present, who saluted the royal couple with much applause, since they saw in this act of good taste a proof of direct interest and effective solicitude for the first and most ancient establishment devoted to agricultural instruction in Germany.—By a contrast which has excited regret among French agriculturists, the Grignon school has not been able to celebrate its fortieth anniversary in so striking a manner; and notwithstanding the splendour of its past, its slow re-organization for the future and its half existence in the present are subjects of grief among those devoted to the progress of agriculture.—In Bohemia, questions relating to the organization of exhibitions and agricultural instruction are exciting but little interest at present, the whole attention of proprietors and farmers being directed to the cultivation of beet-root and to manufactories of indigenous sugar, which, according to a local expression, come up literally like mushrooms. In some localities where habitations made themselves remarked neither by their number nor by their importance, and where cultivation might even pass as negligent, persons travelling are now much surprised to perceive fields of beet-root of a very fine appearance and great works, the high chimneys of which command general attention. These results are due in great part to the development of the spirit of association, as the majority of these enterprises are constituted by shares, and among the principal persons interested are landed proprietors, who have undertaken at the same time to devote a certain portion of their land to the cultivation of beet-root. It was important also to assure the co-operation of small cultivators, and with this object associated manufacturers have concluded with such persons contracts which, for the season of 1868, fix the price of beet-root delivered at the works at 1s. 3d. per cwt., roots from marshy lands being excluded. This fixed price assures the producer from all eventualities; but it is further stipulated that in case, in the months of October, November, and December, the price of mixed sugar should be quoted on the Prague market above 30 fl., the sum paid to cultivators shall be slightly increased. But manufacturers do not content themselves with associating

cultivators, to some extent, with them in their profits: they also make advances to them of money, without interest, in proportion to the quantity of land cultivated with beet-root: these advances are made to the extent of £3 10s. per acre. The refuse left from the beet-root after treatment is also supplied to cultivators for manurial purposes, the charge made being deducted from the price paid for the raw material delivered. Finally, transport indemnities, calculated according to the distance of farms from manufactories, are granted to producers. These indemnities are payable in money or in refuse at the pleasure of those entitled to them. These are advantages which deserve to be taken into serious consideration; but some persons look back and affect to regret the time when the proprietors of large farms sold their beetroot on better terms than at present. But, if the present state of things is not so good for some, it presents an improvement for the majority; and it cannot be doubted that sugar-producing industry has become a real source of prosperity for the agriculture of Bohemia.—June is the month for the meetings and exhibitions of French agricultural commissions, and at all the meetings lately held the new Society of Agriculturists of France has evoked sympathetic adhesions. "Instruct yourselves; make an interchange of your ideas," said the Viscomte Cormedet to the Chénérailles Committee; "there is the principal advantage of meetings like ours—in seeing, you learn to do better; in meeting each other, you can take concert with each other—and thus the wants and aspirations of agriculture can be declared, expressed, and summed up. Moved by this thought, a certain number of eminent agriculturists—some of whom honour me with their friendship—have sought to found at Paris a vast association, which forms French agriculturists into a living and compact body. Your president—whom I applaud on finding him here in his old place—and myself have been among the first to welcome an idea which seems to us likely to be attended with fruitful results, and which now comprises nearly 1,200 adherents. Under the presidency of one of our statesmen, who disdains not in his leisure hours to occupy himself with agriculture—I mean M. Drouyn de Lhuys—this vast society, divided into several sections, will assemble every year at Paris, in order to discuss the interests of agriculture, and to affirm and defend them if necessary. This will be, in fact, a Parliament for our agriculturists." At a meeting of the Château Thierry Committee, the president, M. de Tillancourt, deputy to the *Corps Législatif*, spoke to the same effect. A special exhibition of mowing and reaping machines, held by the Meaux Committee, was also an occasion for bidding welcome to the new association. We should note, in passing, that the jury of the Meaux competition awarded the first prize to the mowing machine of M. Lallier; that of Wood, exhibited by M. Peltier, less fortunate than at Senlis, was classed in the second rank. A machine of smaller dimensions, on Wood's system, modified by M. Peltier, worked separately. The jury was very well satisfied with its manner of working, and awarded it a first prize of £16.—The annual exhibition of the Committee of the Seine-et-Oise was held on the lands of the farm of St. Germain-les-Corbeil, belonging to M. Darblay, jeune, and cultivated by M. Renard. The committee more than fulfilled its programme by organizing a very fine horticultural exhibition, and instituting steam ploughing trials, which proved perfectly successful. One of Fowler's apparatus, belonging to M. Decanville, of Petit-Bourg, was worked during the day. On the report of M. Lucien Rousseau, of Angerville—who did not allow the occasion to escape him of rendering homage to the idea which originated the Society of Agriculturists of

France—the prize of honour of the committee was awarded to M. Duclos, of Marolles-en-Brie. A banquet of 600 covers terminated the *fête*. Toasts were proposed—by M. Darblay, to the Emperor; by M. Boelli, Prefect of the Seine-et-Oise, to Agriculture; and by M. Féray, of Essonnes, to Agricultural Associations. All these toasts were warmly applauded; but what took the fancy of the meeting most was a humorous and forcible, although hastily-improvised, speech of M. Victor Borie, editor in chief of the “*Echo Agricole*.” “I do not wish,” said M. Borie, “to raise complaints against any one; it has been the same from all time and under all Governments, but it is a fact of which Agriculture is not proud, that while our war budget is £16,000,000 our agricultural budget is but £160,000. Some days since there assembled at Paris a body

composed of honourable men, belonging to all religious beliefs and all opinions: this was the Peace League. The members of this Peace League are very brave men, who have the goodness to believe that you can make men very happy without shooting them. Well, I think like them, and we all think like them. What is the Agricultural Committee of the Seine-et-Oise but a league of peace and a league against misery and famine? And what is this new Society of Agriculturists of France, of which we have heard, but a league of all agriculturists to render the soil fruitful and combat misery and famine? . . . Make roads; they are a veritable encouragement of Agriculture. Found some cannons the less, and make roads; manufacture some chassapots the less, and make roads—roads, and still roads.”

## CALENDAR OF AGRICULTURE.

Finish the sowing of turnips, as directed last month. In the eastern counties, turnips sown in in this month escape the fly better than in June, the insect being not so prevalent as in the former month, and the plants are less liable to be mildewed. Horse and hand-hoe potatoes, mangold wurzel, and the earliest sown Swedish turnips. Those plants growing on lands with stiff under-soils are best ploughed in the intervals of the drills by the miniature plough of wood or iron. The narrow-pointed share with one wing pierces the subsoil more effectually than the duck-footed share, raises fresh soil to be scarified by the light implement with two knives, with the power of one horse for both operations. The hand-hoeings are done betwixt the scuffings, loosening the soil between the plants, and cutting all weeds that escape the ploughings. The single plough requires more time than the double-knived scufflers; but the work is better performed; and true economy consists not in getting things cheaply done, but in getting them well done. The processes are repeated till no weeds appear, and the land is completely fallowed, with nothing growing on it except what is sown or planted for crops, exhibiting a true specimen of the cultivation of land. The young plants derive much benefit from the frequent stirrings of the intervals of the drills, and most in dry weather: it causes evaporation of moisture, which is imbibed by the leaves. Tall weeds are pulled by hand, if any rise after last scuffing and hoeing.

Clay fallows for wheat are prepared by ploughing, harrowing, and rolling; and after each earth of cultivation the weeds and stones are picked by hand and removed from the ground. The dung and lime intended to be applied to the land are prepared and brought forward.

Draining of wet lands is done with the greatest neatness and cleanliness on a surface of grass, as the turf is present to cover the stones or tiles, and the surface is not puddled as on arable lands in wet weather. The proper direction of the drains must be marked out in winter, when every wetness shows itself. The drains may be dug to the required depth beforehand, and the bottoms only to be cleaned when the cavities are filled, the turf inverted on the materials, and the excavated earth replaced in the drain. On fallow lands the drains must be excavated, filled with the stones or tiles, the covering

laid on these materials, and the loose soil placed over all, with much force, not to impede the working of the land.

Wean the latest lambs, and place them on the best pastures. Put mares to the stallion regularly.

Attend that the pasture fields have a supply of water, and that no gaps are continued in the fences of the fields, and that no dilapidated or awkward moving gates are seen to mark a slovenly management and a careless profession.

The sheep flocks will require attention. Protect by the contents of the dredging box the deposit of the eggs of the maggot-fly on the body of the animals. Dress clean the posterior parts of the animal from the adhesions of the excrements.

The corners of all pasture fields, both natural and artificial, which includes the whole farm, are very usefully widely planted with trees of spreading branches, as beech, ash, and sycamore, to afford shelter to cattle and sheep from heavy rains and scorching heats, and coolness in hot seasons. In arable lands, the corners of plantations may be extended to a circle, which the plough go round without turning at the corners, and thus relieve an inconvenience. Shelter-sheds for cattle may be placed in the subdivision fences, with a roof sloping into each, with a central height of 15 feet, a front height of 6 or 7 feet, and a bottom width of 12 or 14 feet. Permanent pastures should have these provisions as a necessary furniture. Sheep are much benefited by small thatched cots in the corners of the fields, 5 or 6 feet in the central height, 4 feet in front, and about 5 feet wide. These provisions are very useful in any localities of a high or low elevation.

Hay harvest will be general during this month. Dry the herbage in two or three days, by alternate tedding and cocking; build it into long stacks, lay it lightly together, and allow it to settle by its own weight. It is a mistake to tread the herbage firmly together. Pull nothing from the sides of the ricks till well settled; then dress it into any form, and thatch it without delay. A scaffold of boards is raised to pitch the hay to a high rick. When the hay is damaged by rains, mix salt in the rick, as directed last month. A tarpaulin cloth will cover the stack from rains, when the building is interrupted, and removed in dry intervals to allow the escape of the gaseous evaporations. A light sail-cloth will defend day showers, suspended from a

rope passing along the rick, fastened to an upright pole at each end, and raised and lowered by pulleys.

Corn harvest will commence this month in early localities with the most forward grains. Early peas, barley, and rye will be cut first. Tie the barley and rye into sheaves, to be placed in shocks of twelve together; lay the peas in small heaps, and turn them frequently. Carry the grains quickly when dry, to be lodged in barns in a clean readiness, or built into ricks on stands of stone ready in position, or on the ground with straw spread beneath.

Vetches are now the green food of the farm. Cut the herbage fresh in the forenoon for daily use, for maintaining the work-horses, the milch cows in the yards and sheds in the evening feed; the sheep consuming the crop on the ground, or cut into

troughs along with oats and cake for being fattened. This most valuable plant admits a large application in affording a most nutritious green food to all the animals of the farm—horses, cattle, sheep, and swine, and in acting as a smothering crop on the land, covering the surface, killing all weeds, and in mellowing the surface of the ground into a moist and clammy state of fertility. The crop must be thick on the ground, from thick-sowing of seed, and a careful heavy rolling of the land in the young condition of the plants, in order to lock with a key the moisture that is in the ground and what may fall from the heavens for future use. The vetch in the winter and spring varieties form the green food of the farm for four months of the year, and demand a much larger attention than has been yet bestowed.

## CALENDAR OF GARDENING.

### KITCHEN GARDEN.

Sow peas of any short kinds in the earliest days of the month, and again soon after: the crop may be fine, and therefore acceptable in September. Sow endive twice in the month, from the 8th to 12th, and from 20th to 25th. Plant kidney beans, French beans, and scarlet runners; round-leaved spinach early, and the winter, or prickly sort, in the latter end of the month. Sow lettuce, radish, and a large succession of turnips in the red and white varieties; early Dutch, white, and yellow, to come in late in the year and through winter.

After the second week, sow cabbage seeds, York and Varack, for coleworts, called "greens," one of the sweetest of spring vegetables; and at the close of the month, in some situations, for early hearting spring cabbages. Sow small saladings as may be required, as carrots and onions, to be drawn young, and, on peorish land, a few of the large bulbous to stand the winter, and subsequently to be transplanted for an autumn crop.

Transplant celery, the last crop: it must be carefully earthed up; and in doing this for the first and second times, hold each plant compactly with one hand, while the other applies fine earth close around the lower part of the leaves, but not so high as the growing heart. Give water copiously along the trenches, if the weather be dry, for the first good stand is most important.

Transplant broccoli at various times for early and later spring supply, choosing, if possible, a moist state of soil; otherwise, if the weather be dry, every hole must be filled with water. The ground should be rich in nitrogenous manure; and therefore some soot, mixed up with spit dung, would be useful, as it contains salts of ammonia. May-sown cauliflower may be treated in the same manner.

Transplant leeks; dig and manure richly a plot for a row or two, and use with the dung 2 oz. of sulphate of ammonia to the small barrow. Very prime guano, to the extent of a pint to the same bulk, would comprise phosphates of ammonia and of lime, several ammoniacal and nitrogenous compounds, common salt, and neutral sulphate to the soil. It is the comprehensiveness of pure guano

which stamps its value, and therefore it should always be added to the less powerful manures as a restorative. In planting leeks, make deep case-like holes, and drop therein, applying water in a small stream, so as to fix the roots of each.

Transplant vegetable-marrow and cucumbers already raised in heat. Dig a hole for each in a warm open spot of ground; put in a barrow or more of leafy, rich manure, and cover it with some light rich soil; plant, water, and cover with hand-glasses till growth be established, and then gradually train out the runners. Stop the points occasionally to obtain laterals.

Propagate herbs by slips. Collect camomile flowers.

At all seasons, and under most circumstances, while crops are growing, the following are required to be done: Stick and top peas, also kidney and broad beans; earth-up legumes and potatoes; peg down and train the regular advancing shoots of vegetable-marrow, gourds, and cucumbers; hoe and move the surface among crops; give weak guano-water to plants of the cabbage family. These directions are not many, nor any way expensive.

### FRUIT DEPARTMENT.

In the end of the month, plum and cherry-trees may be trained in the best placed shoots; apple and pear-trees next month. Budding is now performed with wall-fruit, and will succeed if done adroitly, by always recollecting that both stock and scion be in a moist condition, when the bark detaches freely from the wood. Success depends upon attraction between the vital organizable juicy membrane, which exudes, or is deposited between the yearling wood and the inner bark. The bark must rise freely, owing to the exudation of the proper juice between the new wood and the bark. If the operation be timely and skilfully performed, the fluids attract each other, solidify, and cause a union between the secreting surfaces. The art may be learned by watching the operations of a jobbing gardener or workman, which are found in most country places, and are occasionally employed by farmers of the higher grade to perform the upper

works of the garden. To these persons the above directions can only apply.

Lay strawberries at the first joint into small pots of free loam. They will root speedily in moist weather, or if watered when dry.

#### FLOWER GARDEN.

Roses are budded by the rules that have been given for fruit-trees. The largest plants must be chosen in health and strength, and which are judged, from appearance, to contain the juices in abundance. Experience will soon enable to judge these appearances, and also perform the dissection with skill and utility. It is a very pleasing and instructive employment.

Keep all parterres, flower borders, lawns, walks, and shrubberies in neat order, free from weeds, and duly regulated.

The collection of manure for the kitchen garden claims a chief attention, as no articles need be imported as auxiliaries, guano-water being only recommended for some broad-leaved plants. All

lands in farm or garden cultivation should maintain its own fertility—light lands of sands, downs, and commons excepted—for green food and sheep food. The garden requires a liquid pit of brick and cement, to contain every vegetable and earthy refuse, cattle droppings, and all large weeds cut into short lengths, saturated with the soapy waters and urinary liquids of the dwelling-houses, all carefully preserved for the special purpose. A dry compost-heap may be added of lime and all earthy bodies, to make a change of manure. The water-closets to hold the excrements in box on wheels, to roll backwards into an uncovered position, in which to receive fine earths as a mixture, to absorb the moisture, and kill the odour, and from which the contents are lifted for use. One or two common privies will collect on the largest farms, the farm dwelling being always separate. These three sources will supply most amply every demand for manure, all gathered on the farm, at little expense, and not by any extra trouble or interference.

## AGRICULTURAL REPORTS.

### GENERAL AGRICULTURAL REPORT FOR JUNE.

In the early part of the month, a severe drought was experienced throughout the country. It enabled the hay-makers to complete their operations at an early period; but it completely parched up the crops in many districts. The wheats upon light soils have suffered to some extent, and it is anticipated that their yield will fall short of previous expectations. Upon strong lands, however, very little damage has been sustained. It is hoped, therefore, that the entire crop will come up to a fair average. The barley and oat crops will, we apprehend, fall short of last season, owing to the want of an adequate supply of moisture. Beans and peas, however, are likely to yield well.

Owing, chiefly, to the rapidly diminishing stocks held by our farmers, very small supplies of English wheat have been brought forward during the month. The millers have, therefore, been compelled to pay an advance of 2s. per qr. from the lowest point, and very little disposition has been shown to force sales by the importing houses. As far as we can judge, the value of both English and foreign wheat will be supported for several months. The sale for barley and oats has been very inactive, on easier terms, and at Mark Lane the top price of flour has fallen 4s., or to 60s. per 280 lb. We have very little change to notice in the value of either beans or peas: for the most part, sales have been wholly in retail.

In the forward districts, nearly the whole of the crop of hay has been secured in very fine condition. The quantity, however, is considerably less than last year; but there is every prospect of a heavy second crop. In the metropolitan markets new meadow hay has sold at from 36s. to 80s., old 70s. to 95s., clover 70s. to 110s., and straw 30s. to 36s. per load.

The reports from the plantations, in reference to the appearance of the hop bine, are favourable. For the most part, fly is scarce, and the burr promises well; indeed, it is supposed that the crop will be unusually large and of fine quality. On the continent the bine looks remarkably well. The sale for hops in the Borough has been much restricted, and the quotations have had a drooping tendency.

The scanty supply of moisture has retarded the progress of the potato crop. Very few complaints respecting disease have reached us, and most of our correspondents agree in stating that there is every prospect of a large growth. Very few old potatoes have been brought forward; but new qualities have sold at from 6s. to 12s. per cwt.

The colonial wool sales held in London have been brought to a conclusion at one time, owing to the large quantities of wool taken by continental houses; prices showed an advance of  $\frac{1}{4}$ d. to  $1\frac{1}{4}$ d. per lb., compared with the March sales; but, prior to the close, that improvement was lost. Considering that over 200,000 bales were brought forward, it is surprising that the quotations were so well supported.

The drought has had a most prejudicial effect upon the beet and turnip crops. In some counties they are partly destroyed, and it is believed that even the late fine showers will not improve them to any extent.

There has been a moderate demand for most kinds of produce in the Scotch markets, and prices generally have been well supported. The country has suffered much from the late dry weather.

Very small supplies of wheat have been exhibited in the Irish markets. The demand has fallen off; yet prices have been well supported. The island has been visited with copious showers of rain, which have greatly improved the appearance of vegetation.

# REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

Owing to the serious drought experienced in the early part of the month, the supply of food in the pastures has fallen off considerably. Many of the graziers have, therefore, been compelled to withdraw their stock, and the consumption of food has fallen partly upon hay. This has led to an increased supply of beasts in our leading markets, and to much inactivity in the demand for most breeds. The fluctuations in prices have as a consequence been somewhat extensive. At one period, the best Scots and crosses sold at 4s. 8d.; but, owing to the limited quantities of dead meat on sale in Newgate and Leadenhall, the quotation has since advanced to 5s. per 8lbs.

The numbers of sheep brought forward have been extensive; but we have observed a falling off in their general weight and condition. Although a good business has been doing, the rates have fluctuated. The best Downs and half-breeds have ranged from 4s. 8d. to 5s. per 8lbs.

Lambs have come freely to hand. The demand has fallen off, and the leading quotations have been 5s. 6d. to 6s. 6d. per 8 lbs.

We have very little change to notice in the value of calves. Prices may be quoted at from 3s. 8d. to 5s. 2d. per 8 lbs. Fair average numbers have been brought forward.

The best small pigs have supported previous rates, with a fair demand; but inferior pigs have sold heavily. The former have changed hands at from 3s. 10d. to 4s. 4d., the latter 3s. 4d. to 3s. 8d. per 8 lbs.

The following figures show the total supplies of stock exhibited in the Metropolitan Cattle Market during the month:—

	Head.
Beasts ... ..	18,650
Sheep and Lambs ... ..	177,690
Calves ... ..	2,875
Pigs ... ..	1,480

## COMPARISON OF SUPPLIES.

	Beasts.	Cows.	Sheep and Lambs.	Calves.	Pigs.
June, 1864 .....	25,890	550	138,460	2,786	3,280
1865 .....	24,050	646	165,720	4,278	3,210
1866 .....	18,820	130	139,880	1,864	1,782
1867 .....	16,270	120	146,660	2,600	2,048

The comparison of the arrivals of English, Scotch, and Irish beasts is as under:—

From—	June, 1866.	June, 1867.	June, 1868.
Norfolk, Suffolk, &c. . .	9,000	5,570	9,000
Lincolnshire .....	—	400	370
Other parts of England.	1,930	2,240	1,920
Scotland .....	59	737	97
Ireland .....	20	20	220

The imports of foreign stock into London were as follows:—

	Head.
Beasts ... ..	5,327
Sheep and Lambs ... ..	16,849
Calves ... ..	1,910
Pigs ... ..	569
Total ... ..	24,655
Total in June, 1867 ... ..	48,508
" 1866 ... ..	47,425
" 1865 ... ..	61,935
" 1864 ... ..	38,020
" 1863 ... ..	30,059
" 1862 ... ..	22,841
" 1861 ... ..	32,751

From the above comparison it will be seen that the imports of foreign stock are falling off considerably, notwithstanding that prices continue remunerative. We learn, however, that on many parts of the continent both beasts and sheep are higher in price than in England. Whilst high quotations continue abroad, we can hardly anticipate any important increase in the importations.

Beef has sold at from 3s. to 5s.; mutton, 3s. to 5s.; lamb, 5s. 6d. to 6s. 6d.; veal, 3s. 8d. to 5s. 2d.; pork, 3s. 4d. to 4s. 2d. per 8 lbs. to sink the offal.

## COMPARISON OF PRICES.

	June, 1864.	June, 1865.
Beef from .....	s. d. s. d. ... 3 4 to 5 0	s. d. s. d. ... 3 6 to 5 2
Mutton .....	3 6 5 2 ...	4 4 6 4
Lamb .....	6 0 7 0 ...	6 0 7 8
Veal .....	4 0 5 0 ...	4 0 5 4
Pork .....	3 6 4 0 ...	3 6 4 10
	June, 1866.	June, 1867.
Beef from .....	s. d. s. d. ... 3 10 to 6 0	s. d. s. d. ... 3 4 to 5 6
Mutton .....	4 0 6 0 ...	3 8 5 4
Lamb .....	6 8 8 0 ...	6 0 7 0
Veal .....	5 4 6 4 ...	4 0 5 6
Pork .....	4 0 5 2 ...	3 4 4 6

Scarcely any foreign meat has been on sale in Newgate and Leadenhall; and the arrivals from Scotland and various parts of England have been on a limited scale. On the whole the trade has ruled steady. The leading quotations have been as follows:—Beef, from 3s. to 4s. 6d.; mutton, 3s. 2d. to 4s. 8d.; lamb, 4s. 6d. to 5s. 4d.; veal, 3s. 6d. to 4s. 6d.; and pork, 3s. to 4s. 6d. per 8 lbs. by the carcase.

## WEST SUSSEX.

The state of the growing cereal crops is now a matter of vast interest and importance. I see there are persons as last year who are telling the public of the grand appearance of the crops generally, but I think these will turn out as last year to be false prophets. In this division of the county, which has such variety of soils, my report must have reference to locality. On the good land of the sea-coast I think the wheat crop is generally looking well, and with favourable weather will produce a fair average yield. On the hills, except some pieces which have been thin of plant all the winter, from the ravages of slug and wireworm, I believe the prospects are good. In the stiff land of the Weald I do not think appearances are in favour of an average. It is a question also whether on all soils the present unexampled weather (for the sun shines from morning till night) will not injure the crop, and bring on premature ripeness. I know old farmers say "nothing like dry weather for wheat." I say so too, but this is rather beyond ordinary dry weather, and in addition we have now a parching east wind. Barley and oats, except on the very best soils and where got in very early, must, I think, be short in straw and deficient in yield. In the clay lands of the Weald a large proportion of the oat crop will be a failure. All root crops must suffer from the present dry weather. Mangold wurzel came up badly, and swede turnips may be considered hitherto a failure. Both lean and fat stock are falling in price, and feed is becoming scarce. The hay crop, a very light one generally, has been carried so far in capital order.—June 19.

## AGRICULTURAL INTELLIGENCE, FAIRS, &c.

**BANBURY FORTNIGHTLY FAIR.**—The demand for cattle was very slow; and few sales were effected, even at a reduction on the prices of last market. The mutton trade was also dull, and the price obtained was about 4s. per stone.

**BANNOCKBURN FAIR** drew together a large attendance of dealers and farmers from all parts of the country. The show of stock consisted principally of Ayrshire milch cows, grazing cattle of the sound, useful, and profitable breed, and several lots of calves and stirks from Ireland. The market opened flat for all descriptions of stock; and the dullness which so early indicated itself was not relieved as the day progressed. For milch stock the sale was especially dull; and the same remark is applicable to the Irish cattle. Home-bred animals for grazing purposes were easier got quit of. In the horse fair there was a quiet sale for all kinds; and at the finish of the market the want of customers was made apparent by the number of animals which remained unsold. From Ireland there was a fair show of cob and harness-horses; but a very dull demand took place. The following were among the chief transactions: Mr. Potts purchased calving heifers at from £10 to £12. Mr. Crawford sold a lot of fourteen Crosses at £5, and a lot of stots at £6 10s. Mr. Keir sold

calving queys at from £9 to £10, and milch cows at similar prices. Mr. Goodwin sold calving queys at from £7 to £9, milch cows at from £11 to £12 10s. Mr. Graham sold milch cows at from £10 to £14, fat cows at from £14 to £14 10s., and queys at £7 10s. Mr. McGhie sold milch cows at from £10 to £15. Mr. Brook sold milch cows at from £12 to £14. Mr. Liddell sold milch cows at from £14 to £14 10s. Mr. Waddell sold calving queys at £8, and milch cows at from £10 10s. to £13. Mr. Scott purchased milch cows at from £10 to £14. Mr. Yaill purchased draught-horses at from £28 to £30. Mr. Christie sold draught-horses at from £20 to £43. Mr. Walker sold draught-horses at from £20 to £35, and harness-horses at from £20 to £40. Other sales of a similar nature were recorded.

**BOROUGHBRIDGE HORSE FAIR.**—There was a good attendance of both local and foreign buyers. First-class hunters and roadsters still continue to keep an upward tendency, and the best descriptions were readily sold. A poor show of cab and trap horses, but they had good sale. The best draught horses for town purposes went at paying figures, but other descriptions, which were abundant, went at very irregular prices.

**BOSTON SHEEP MARKET.**—There was a fair supply of fat sheep at market; but, the demand being small, trade was dull, at from 5d. to 6d. per lb.

**BRADFORD FAIR.**—There was quite an average show of horned cattle; but the continuance of drought had an adverse influence on business, and prices had a drooping tendency. The quotations for milch cows ranged from £12 to £21 each, and for geld cows from about £9 to £16 each. Stock of the choicest quality, and commanding the best prices, were in fair demand; but this was quite an exceptional feature in the market. The chief business done was in good draught-horses, which were scanty in number, and commanded good prices.

**DROITWICH FAIR** was well attended. There was a larger quantity of stock for sale than on several previous summer fairs; but the business transacted was somewhat limited. The prices may be fairly quoted as follows: Beef 7d. to 7½d., mutton 6½d. to 7d., lamb 8d.

**LEDURBY FAIR** was rather a small one, except in regard to store sheep, of which there were a good number. Fat sheep were scarce. Stock for the most part were somewhat lower; dealers not numerous. Beef sold at 7d. to 7½d., mutton (wethers) 6d. to 7d., fat ewes 6d. The pig trade was brisker.

**MENHENOT MARKET.**—A large number of cattle were offered for sale. Fat bullocks realized from £3 6s. to £3 10s., per cwt., but there was not a brisk sale. There was a good supply of neat Devon store steers, which, from the plentiful supply of grass, realized good prices. There was a small supply of sheep and lambs. Shearing sheep 6½d. per lb., in the wool 8d. per lb., lambs about 8½d. per lb. There was a plentiful supply of cows and calves, the prices of which had a downward tendency.

**NEWARK FAT STOCK MARKET.**—A good supply of both beasts and sheep, and a fair number of buyers; but trade was slow, and sellers were obliged to give way in favour of purchasers before sales could be effected. Beef ranged from 7s. 6d. to 8s. 6d., the bulk being sold at 8s. Sheep 5½d. to 6d. per lb. Lamb 2½s. to 2½s. each.

**NEWTON-STEWART MARKET.**—Business opened stiffly, the recent fall in the price of sheep having a visible effect on this market. Holders of stock in many instances would have been content with the current figures of last market, but buyers were offering from five to ten per cent. less; consequently, trade ruled very heavy. Three-year-olds ranged from £10 to £12 each, two-year-olds £7 7s. to £9 9s., stirks from £3 to £5. A few left unsold.

**ROSLEY HILL FAIR.**—Horses in great numbers were brought for sale, and there was no lack of buyers. The condition of the horses was good, though of course liberally interspersed with inferior nags. Anything really good was quickly picked up at a very good price; and, indeed, good prices might be quoted for all classes. A good business was done all through the day. Prices for the best class shown ranged from £30 to £50, other classes coming down according to merit.

**ST. AUSTELL MONTHLY MARKET** was well attended both with buyers and sellers, and many good bargains were made. Fat cattle sold at from £3 6s. to £3 10s. per cwt.

**SOUTHMOLTON FAIR.**—There were not so many bullocks exhibited as previous to the outbreak of the cattle-plague, a good deal of business being now done at the homes of the breeders. Fat bullocks sold well, and were eagerly bought at 12s. 6d. per score. One prime lot sold at 13s. per score, but those were the best in the fair. Cows and calves were dear, so were young bullocks and steers, a pair of the latter fetching £30. There was about the usual number of sheep penned; ewes 6d., wethers 6½d. to 7d. per lb., with a rather slack sale.

**STOFORD FAIR** suffered in two ways—from the prevailing dry weather, many farmers being in the midst of their hay-harvest, and those who attended being rather apprehensive about the keep. The sale consequently, on the whole, was dull. Considering the length of time that the fair has been closed, there was a large quantity of fat beasts and yearlings, the best beef moving off at 12s. a score. Yearlings druggish. An average number of sheep, which we quote—ewes 30s. to 48s., lamb 18s. to 27s.

**TARBOLTON FAIR.**—There was a large display of stock, entirely composed of Ayrshire cattle. There was a good attendance of dealers and others. The market proved a dull and sluggish one, and prices were back from recent district fairs. The prices of two-year-olds ranged from £4 to £7, of stirks from 30s. to £4, and of calving cows from £9 to £18.

**TAUNTON FAIR.**—Cattle were not so numerous as in years gone by. Good animals sold readily at the following prices: Fat beasts £16 to £27, store ditto £10 to £15, cows and calves £12 to £18, fat sheep 40s. to 47s., grazing ditto 32s. to 39s., rams £6 to £14. Business in horses was very brisk; the number was much larger than last year, and, taken as a whole, the quality superior, especially those for the road and for agricultural purposes. Hunters fetched £28 to £55, carriage horses £14 to £38, cart horses £10 to £30, hacks £10 to £26, ponies £9 to £18.

**THORNE FAIR.**—The show of horses and beasts was above an average, but very inferior in quality; from £15 to £30 was about the range of prices. For Irish calves £11 to £12 was asked, and small bullocks were sold at £5 15s. each. For English cattle the prices were higher; but very few lots changed hands, good year-old heifers being from £8 10s. to £12, and calves £12 to £16.

**WORCESTER FAT STOCK MARKET.**—Owing to the shortness of keep, there was a very large supply of stock brought to the market, and consequently prices were dull, and in many cases much lower. Beef was ½d. per lb. lower, and mutton ¼d. to ¾d. per lb. lower than last market.

**IRISH FAIRS.**—**MULLAGHCREW:** Prime specimens of beef went to fully 65s., second class from 56s. to 60s. per cwt., and third class from 48s. to 52s. 6d. per cwt. Three-year-old heifers brought from £13 to £15 for those in best condition, two-year-olds from £9 to £11 10s., yearlings from £4 to £7 each. Three-year-old bullocks from £12 to £16, the latter figure being obtained for a prime lot, two-year-olds from £8 to £11, yearlings from £4 to £8. Young springers went from £15 to £17 10s. each, while inferior springers and milkers rated from £9 to £12 10s. per head. There was an immense show of sheep and lambs, and busy buying for shipment. Prices were, nevertheless, a shade lower than late fairs. From 5½d. to 6½d. per lb. were the quotations for wether mutton in the skin, ewes in proportion, lambs from 2s. to 30s. each, hoggets from 32s. to 38s. a-piece. The swine fair was well attended. Bacon rated from 6½d. to 7d. per lb., still holding a smart price. Stores went from 40s. to 55s., and the weanlings from 16s. for the smallest to 24s. for the best.—**NEWTOWN-BARRY:** Beef went up to 61s. per cwt. for prime animals; new milch cows and springers averaged £13 each, strippers sold from £8 to £11, three-year-old cattle from £10 to £16 each, two-year-old £9 to £10, yearlings £3 15s. to £6. Mutton sold from 5½d. to 6½d. per lb., hoggets from 30s. to 40s., lambs 19s. to 26s., fat pigs from 54s. to 57s. 6d. per cwt., stores varied from 34s. to 50s., slips from 16s. to 25s., bone-hams from 11s. to 16s.—**CALLAN:** Yearling bullocks and heifers rated at from £3 10s. to £6 6s. per head. Two and three-year-olds ranged from £7 to £13. First-rate milkers and springers near the dropping realized from £13 to £15 10s. per head, second and third ditto eight to eleven guineas. Young bulls were bought at from £6 to £10 10s. per head. Half-fat cows and strippers ranged from £12 5s. to £15 10s. per head. Some prime ewes averaged 38s. per head, hoggets and lambs 17s. to 30s., and mutton 6d. to 6½d. per lb. Small



pigs in kishes and creels went from 16s. to 23s. each, clips and stores 32s. to 40s.

**CORK BUTTER MARKET, (Friday last.)**—First 102s. seconds 99s., thirds 92s., fourths 90s., fifths 77s., sixths 60s.; mild cured—firsts 106s., seconds 102., thirds 96s. Number in market, 1,590.

**GLASGOW CHEESE MARKET, (Wednesday last.)**—The supply of cheese moderate, 630 having been laid down, chiefly new. To clear off some lots that were lying over, lower prices were taken. Business upon the whole slow. About 18 tons sold. Old Cheddars 51s. to 57s., new ditto 44s. to 49s., old Dunlops 48s. to 55s., new ditto 42s. to 45s., new skim-milk 21s. to 23s.

**THE HARTSIDE SALE.**—A sale of stock at Hartside, in the Cheviots, took place on Friday, May 29, under the direction of Mr. Samuel Donkin. Upwards of 3,000 sheep and lambs were brought to the hammer, besides horses, cattle, and other farm stock. The sheep sales were the great feature of the auction, and the Greensides averaged as follows:—Young ewes and lambs £2 5s. 10d., four-year-old ewes £2 6s. 1d., five-year-old ewes and lambs £2 3s. The Hartside three-year-old ewes £2 7s. 3d., four-year-old ewes £2 6s. 3d., five-year-old ewes £2 5s. 8d., gimmers £1 17s. 5d., ewe hogs £1 8s. 9d., wedder hogs £1 2s. 4d., Dinmonts £1 12s. 2d., old wedders £1 16s. 7d., tup hogs £2 15s. 6d., old tups £2 4s. 5d. The competition was very keen.

**SHORTHORN SALE.**—On Thursday, June 4, a draft of shorthorn dairying cattle, from the celebrated herd of Sir Curtis M. Lampton, of Rowfant, Sussex, were sold on his estate by Mr. Strafford. There was a large company present from various parts of the country, and several of the cattle were purchased for foreign exportation. Among the principal lots sold were a roan milch cow (Fancy) of known blood and from a prize family, to Mr. Roberts for £315, and the auctioneer remarked that this was the highest value ever recorded for a cow in Sussex. A yearling heifer, the produce of this cow, was purchased by Mr. Cheney for £152 5s., and a calf (now but two months old), from the same cow, realized £52 10s., to Mr. Sartoris. Brannette, a milch cow, was sold to Mr. Rigg for £105. Mr. Tracey bought Hebe at £70 7s.; Mr. Akins took Nancy at £79 16s.; and Mr. Downing had Princess at £78 15s.; two other yearling heifers fetched £81 18s.; and three other calves under four months of age produced £69 6s. The sixteen dairying shorthorn cows realized an average of £69 19s. each. The three heifers made an average of £78 4s. 6d., and the four calves brought the average of £30 9s. each, and the herd, consisting of 23 head of cows, heifers, and calves, produced the aggregate amount of £1,475 5s.

**SALE OF A DRAFT OF MR. HARWARD'S SHORT-HORNS.**—Mr. Strafford sold, at Winterfold, near Kidderminster, on June 17th, 34 cows and heifers, and 15 bulls and bull-calves, announced as bred with great care from the stock of the Duke of Devonshire, Lord Ducie, Messrs. Bowley, Maynard, and Rich, and others. Amongst the bulls was Charleston, the sire of many of the cows and heifers offered. A number of gentlemen, farmers, butchers, and others attended. The total produce of the sale amounted to £1,453, the average for the 49 animals being less than 30 guineas each. Lady Jane 2nd, a roan, sire Duke of Bolton, was bought by Mr. Beaseley for 41 guineas; Oxford Lassie, a red, sire Duke of Ormond, by Mr. Mann for 40 guineas; Forest Queen, a roan, sire Fitzroy by Mr. Nash at 37 guineas; Phœnix, a rich roan, sire Archduke, by Mr. Holland at 37 guineas; Duchess of Gloucester, white, sire Mandarin, by Mr. Canning at 31 guineas; Cleopatra the 8th, red and white, sire 10th Duke of Oxford, by Mr. Norris at 45 guineas; Charming Woman, red, sire Royal Arch, by Mr. Blakeway at 34 guineas; Cleopatra 9th, a rich roan, sire Lord Oxford, by Mr. Davis at 58 guineas; Yorkshire Lass, a roan, sire 7th Duke of York, by Mr. Cutler at 38 guineas; Maid of Oxford 2nd, a roan, was the highest-priced female, her sire was 7th Duke of York and dam Maid of Oxford, and she was knocked down to Mr. Cutler for 80 guineas in calf. Charleston is a rich roan, and 5 years old, by Lord Oxford; and his dam, Countess of Berrington, was bought by Mr. Morris for 46 guineas. Mark Antony, 11 months old, made 46 guineas, to

Mr. Munns; and Lord Waterloo 2nd, 6 months' old, 35 guineas, to Mr. Cutler. The local papers speak to "the spirited competition," but according to the prices realised the sale must have been by no means a success.

## ENGLISH WOOL MARKET.

**CITY, MONDAY, June 22.**—We have no change of importance to notice in the English wool-market. The trade continues languid, and the quotations are almost nominal. Stocks are on the increase; but there is soon likely to be a revival in the export demand.

CURRENT PRICES OF ENGLISH WOOL.		s. d.	s. d.
FLEECES—Southdown hoggets.....	per lb.	1 3½	to 1 4
Half-bred ditto .....		1 4½	1 5
Kent fleeces.....		1 4	1 4½
Southdown ewes and wethers ..		1 3	1 4
Leicester ditto .....		1 3	1 3½
Sorts—Combing .....		1 0	1 1
Clothing .....		1 2	1 6

**BRACKLEY WOOL FAIR, (Wednesday last.)**—Business was dull, owing to the absence of the large manufacturers. In the fair there were about 13,000 fleeces of Wool—a larger number, we believe, than on any former occasion. The highest price obtained was 39s. 6d. per tod, the average being 38s.

**BRADFORD WOOL MARKET, (Thursday last.)**—The continuance of a moderate consumptive demand for wool, principally the lustre sorts, is reported to-day. The tone of the trade is rather firmer, owing to the improvement which has taken place during the last few days in the Liverpool cotton market, but staplers allege that they are unable to realise prices proportionate to country rates, which are gradually hardening. As, however, there is a large quantity of wool to come forward, and the drought, should it continue, will have a very injurious effect upon the crops and upon the state of trade, they are not very eager as yet to replenish their stocks.—*Bradford Observer.*

**CUMBERLAND WOOL FAIRS.**—At the annual wool fairs held in Cumberland prices generally have had an upward tendency, and a fair amount of business has been done. At both Longtown and Brampton the prices were nearly the same. The following were the average: Half-bred hoggs 1s. 7½d. to 1s. 8d., Cheviot hoggs 1s. 4d. to 1s. 5½d., mule hoggs 1s. 2d. to 1s. 3½d., Leicester and half-bred ewes 1s. 3d. to 1s. 4d., and Cheviot ewes 1s. 1d. to 1s. 2d. per lb.

**DONCASTER WOOL MARKET, (Saturday last.)**—Another immense market, not far short of 1,800 sheets. These great supplies naturally check business, and trade ruled very flat. Still fine lustre wools were not quotably cheaper, and inferior runs scarcely so. About 6d. per stone would cover the greatest reduction, but for all business purposes last week's prices must be quoted with a slow trade.

**GLASGOW WOOL MARKET, (Saturday last.)**—Fine weather having now set in, clips are coming into the market more freely, and during the week a fair average of bred wools has changed hands. Rates have been well maintained. A few clips of laid Highland have also come in, but as buyers are evidently waiting the result of the sales next week, little business has been done. Rates, it is expected, will be fully tested then. White Highland is not in request.—*F. H. M'Leod.*

**HEREFORD WOOL MARKET, (Wednesday last.)**—There was again a fair quantity of Wool at market, and prices were about the same as last week—viz., wethers 16d. to 16½d. per lb., mixed wool 16d. to 17½d., and hoggs 18d. to 18½d.

**LEEDS (ENGLISH AND FOREIGN) WOOL MARKET, (Friday last.)**—The consumption of English wool is well maintained, and prices are firm, especially for the best quality. The farmers are asking higher rates than can be got for some sorts in the manufacturing towns. Colonial wool is barely maintaining the prices given at the beginning of the sales, and as there is still a large quantity to offer the necessities of buyers can be easily met. Inferior wools are selling at losing prices for the colonists and others.

**LEOMINSTER WOOL FAIR.**—Wool ruled from 16d. to 18d., and to fetch the latter price about one-half of the fleeces were tegs. Lambs' wool was 12d. and 13d., but not so much on offer.

**MALTON WOOL MARKET, (Saturday last.)**—The full clip of wool now being available, there are numerous sellers among the smaller farmers; buyers, however, were not so

eager to purchase as a week ago, and the best wools are not quite so high, the extreme rates not being given. The average prices may be put at 23s. for hogg fleeces, 21s. mixed, and 18s. ewe per 14 lbs.

**STOCKTON WOOL MARKET, (Wednesday last.)**—A good supply of wool, which made the following prices: Leicester, all hogg 21s., two hogs for one ewe 20s., half-and-half 18s. 6d. to 19s.; Cheviot hogg 17s. 6d. to 19s., ditto ewe 14s. to 15s. per stone; Scotch 6d. per lb.

**YORK WOOL MARKET, (Thursday last.)**—To-day there was the largest show of Wool that has ever been known in York, the number of sheets pitched amounting to about 1,500. The business done was consequently slow, and last week's prices could not be maintained. Pure-bred fleeces fetched from 17s. to 22s. per stone as per count of hogg, ewe, and wether fleeces; and clean condition and cross-bred wools sold

at from 12s. to 16s. per stone; locks from 9s. to 10s. 6d., and cots 12s. to 14s. per 14 lbs.

**BRESLAU WOOL REPORT, June 18.**—Owing to the continuance of the German wool-fairs, which are attended by our customary buyers, business is completely at a stand-still. In the meanwhile, large supplies are arriving from Prussia, Posen, Poland, and Hungary, which, added to our remaining stock, form a quantity of about 35,000 cwts. The recent fairs of Landsberg, Dresden, Rostock, Halle, Weimar, Leipzig, and Augsburg had very nearly the same result as our own, and only at Stettin was an indifferent revival noticeable, as combers were purchasing rather freely, and paying for good washed a little more in proportion than at other fairs. The Berlin fair, which begins on the 19th inst., will be a deciding one for the further march of the wool-trade.—GUNSBERG BROTHERS.

## REVIEW OF THE CORN TRADE DURING THE PAST MONTH.

For three weeks the month of June followed the dry hot month of May, with greater intensity of solar power, until general apprehensions were entertained that the drought would seriously affect the yield of corn, as it has already that of hay, which proves a very scanty produce. Some fine rains began to fall on the third week, with more frequent falls subsequently, and we hope they will save much of the spring corn, which was in great jeopardy. Wheat in the light lands suffered quite as severely, whole fields with a gravelly subsoil going off as if by blight, and such lands must be past recovery; but the deep highly-farmed loams scarcely ever looked better, and have been put about a month forward by the extraordinary heat. This is no slight matter at a period of exhausted stocks, being perhaps equal to an import of two million quarters. So the pinch apprehended by many can now never be felt, unless there should be disasters in harvest time. These, however, we have no right to expect, but rather to be thankful that a critical period has thus been met by the kindness of Providence—though, as in all these cases, at the smart expense of some. The rain, we fear, has arrived too late to make a good crop of peas, though it will wonderfully alter the market gardens. The beans, being later, have received great benefit, as well as the late pieces of barley in the cool soils, and also a good portion of the oats. But enough has passed to remind us of our constant dependence, in the midst of the most industrious and intelligent efforts, on the soil; and it affords a striking comment on those sure words: "Neither is he that planteth any, nor he that watereth, but God that giveth the increase." In France, it would seem, opinions vary; but the general expectation is not beyond an ordinary year. Belgium and Holland appear satisfied with their prospects, the soils of both countries, though so different, better bearing the heat. Germany has had rain. There are some complaints in Poland, Russia, and Spain; but America promises an average surplus for export. Our rates have materially altered for wheat under these changed circumstances, the decline being on the first Monday

about 3s. to 4s., fully 1s. of which was subsequently recovered. The following were the recent quotations at the several places named:—The best white wheat at Paris 76s., red 70s. 6d. In Belgium rates varied from 66s. to 68s. 6d., white Zealand at Rotterdam 71s., Holstein red at Hambro' 69s., Saale 67s. 6d., red at Cologne 57s., at Mayence 60s., Berlin 61s., the best high-mixed at Danzig 71s., Serbian yellow at Pesth 38s., red Banat 43s., Upper Canada spring 54s. 6d. per 480lbs. No. 1 spring American at New York 59s. per 480lbs.; No. 2, 67s.

The first Monday, which happened to be the first day of the month, was the time of deepest depression. The weather was most splendid; the home supply of wheat only small; and, though the foreign arrivals were large, they were by no means excessive. Very little was exhibited on the Kentish and Sussex stands; but a sort of panic seemed upon the trade, and, though English factors had not much to clear, they would gladly have done so at a decline of 3s. to 4s. per qr.; but millers seemed in a state of alarm, and left the stands pretty much as they found them. The foreign trade was very little better, factors being willing to submit to a reduction of 2s. to 3s. per qr., without finding more than the most retail custom. The same influence was felt in the floating trade; and some time holders sacrificed several cargoes of Odessa Ghirka wheat at 54s. 6d. per qr., which at the end of the week brought 3s. 6d. per qr. more. The depressed advices from London had considerable effect on the country markets. A few went down more than London—viz., Bury St. Edmunds, Bristol, Gloucester, and Sheffield noting a decline of 4s., and Hull of 4s. to 5s.; but more generally 2s. to 3s. was noted as the decline, and several did not exceed 2s. per qr. Liverpool, which gave way 6d. per cental on Tuesday, recovered on the following Friday. Glasgow was quite panic-stricken, and noted a fall of 2s. to 3s. per boll; but Edinburgh was more moderate, the reduction not exceeding 2s. per qr. Dublin submitted to 2s. per barrel, with but little doing at the decline.

On the second Monday there was a more limited supply of native wheat, but a greater abundance of foreign. The Essex and Kentish stands exhibited very few fresh samples this morning; and the weather having become colder, some reaction was experienced, and 1s. per qr. advance was realised on good samples. More confidence was exhibited in the foreign trade, there being no disposition to force sales; and floating cargoes were fully 1s. dearer than on the previous Monday. The reaction evinced in the London market was much more marked in those of the country; but they varied materially. Though more money was generally demanded, some were only firm; some reported a rise of 1s., as Ashford and Alton; more were up 2s., as Birmingham, Bury St. Edmunds, &c.; others rose 2s. to 3s.; and not a few were up 3s. to 4s., as Boston, Ipswich, Leighton Buzzard, Sleaford, and Stockton. Edinburgh advanced 2s. per qr. Glasgow was only slightly dearer. Dublin reported a great trade, with very little change.

On the third Monday there was a small supply of English wheat, but plenty from abroad. There were but few fresh samples showing on the Essex and Kentish stands; and some were asking more money, say 1s. to 2s.; and in one or two instances, we hear, it was made, but generally we could only note more firmness in the trade. There was, however, more demand for foreign, at the previous currency; and cargoes afloat were a better sale, at fully as much money. With scanty supplies again in the country, and the weekly sales further reduced, there was a hardening tendency in prices. About half the reports were 1s. per qr. higher; a few were up 1s. to 2s., as Ipswich, Leeds, Lynn, Market Harborough, and Market Rasen; yet some places were dull, as St. Ives and Sheffield. Edinburgh was up again 1s. to 2s.; but Glasgow was only slightly improved. All that could be said of the wheat trade at Dublin was, that it was firm.

On the fourth Monday the native supply was again small, but the foreign was the largest of the four weeks. Some fine rains had fallen, and done much good to the wheat on the light lands. A few of the previous week's samples were yet on the Essex stands, increased by a small number of fresh. An effort was again made to realize some advance, but it did not succeed, though everything good was fully as dear. Fine Danzig being very scarce was held high. A steady demand was experienced for the better qualities of Russian and spring American, but low qualities were rather in favour of buyers, and somewhat difficult to place. Floating cargoes were fully as dear. The subsequent advices from the country showed little difference.

The London imports during the four weeks were 8,698 qrs. English wheat, 131,747 qrs. foreign; against 14,947 qrs. English, 103,775 qrs. foreign for the same period in 1867. The London averages commenced at 73s. 9d., and closed at 68s. 5d. per qr. The London exports were 52 qrs. wheat, 63 cwt. flour. The general averages opened at 73s. 10d., and finished at 67s. 6d. The imports into the Kingdom for four weeks were 2,976,449

cwt. wheat, 164,303 cwt. Flour; against 2,330,211 cwt. wheat, 370,608 cwt. flour for the same time in 1867.

The supplies of country flour have kept up very well, considering the difficulty of procuring wheat in the interior; but the foreign arrivals have been moderate. A decline of 1s. to 2s. per sack took place on the first Monday, in sympathy with the state of the wheat trade, bringing Norfolks to 48s., and the better markets in proportion. There has been no quotable change since, business having been quiet. The foreign trade has been also on a small scale, the best American barrels scarcely being worth over 36s. On the third Monday town millers lowered the top price from 64s. to 60s., at which it remains, and does not seem for the present likely to change. The imports into London for four weeks were 50,754 sacks country made, 9,396 sacks 6,540 brls. foreign; against 69,977 sacks country, 20,643 sacks foreign for the same period in 1867. The Paris market has fluctuated much, but closed rather dearer, and above profitable shipments to England.

The arrivals of maize have been moderate, and so has the demand, at about 1s. decline in the course of the month.

Very little British barley has come to hand, but little has been wanting. The foreign receipts have lately been somewhat liberal, though chiefly of a grinding description. The market, though weak in prices through the month, and giving way 2s. per qr., subsequently hardened, in consequence of unfavourable reports as to the influence of the late drought on the growing crop, which in some localities have suffered much; and though the late moderate rains will doubtless save a good many pieces, they have come too late for some that were prematurely forced into ear. Malting prices are of course nominal, but good Saale could be had at 36s. to 37s., and good grinding has lately sold freely at 32s. The imports into London for the four weeks were 1,367 qrs. British, 34,631 qrs. foreign; against 2,075 qrs. British, 24,934 qrs. foreign last year.

The malt trade was very quiet during the earlier part of the month, and tending downwards; but the late reports respecting barley have caused more business, at rather firmer rates.

The entire supply of oats from the United Kingdom has been very scanty, but the foreign arrivals have more than made up for the deficiency, and been very large for the time of year, generally exceeding the expectations of importers from the previous foreign reports. Steamers have helped to swell the amount with Russian sorts, and these with the inferior qualities have given way in value during the month about 1s. per qr.; but so scarce has been fresh heavy corn, and so small its proportion to the bulk of our receipts, that it can hardly be considered any cheaper. Good 38 lbs. sweet corn is worth nearly 28s., but light and inferior has been selling at 23s. As there seems little now left in the country, we shall principally depend on foreign arrivals. It is well some fine rains have fallen, for this crop; as, though forced on at a rapid rate by the powerful sunshine, it was very unpromising a little while back, and we fear now cannot be a plentiful

one. As we know the hay has suffered, we may have another dear season for this corn. The imports into London for four weeks were 957 qrs. English, 130 qrs. Scotch, 880 qrs. Irish, 160,069 qrs. foreign. This grain has lately risen again in France from injury done there, and we may once more have the French in the market for Russian corn, as they have all along been buying in Russian.

The bean supply has been moderate, both English and foreign, yet prices gave way on the first Monday 1s. per qr.; but they have since been hardening, as the haulm is very short and the drought is said to have lessened the number of pods as well as prevented their filling. The imports into London for four weeks were 1,702 qrs. English, 3,280 qrs. foreign, against 2,037 qrs. English, 7,924 qrs. foreign for the same time in 1867.

Scarcely any English peas have appeared at market, and there have only been two small shipments of foreign white. There has, however, been little demand for hog feed, maize being cheaper and barley also; but white sorts, from the shortness of stocks, have kept steady, being worth 45s. to 47s. per qr. The imports into London for four weeks were 79 qrs. English, 1,400 qrs. foreign, against 294 qrs. English, 4,333 qrs. foreign in 1867.

Linseed, in consequence of the short supplies, has been rising till it has gained 2s. to 3s. per qr. from the lowest point, and seems likely to be dear.

In Cloverseed a limited sale has been sometimes made, at about late rates, and it is now held for more money. New samples of trifolium have appeared in France, and trefoil here. Prices not fixed.

#### CURRENT PRICES OF BRITISH GRAIN AND FLOUR IN MARK LANE.

		Shillings per Quarter.	
WHEAT, Essex and Kent, white...	old 73 76...new 68 to 75	71	72
Norfolk, Lincoln, and Yorkshire, red	71 72... 65	71	71
Barley	34 to 38...Chevalier, new	37	46
Grinding	33 35...Distilling	36	40
MALT, Essex, Norfolk, and Suffolk	69 extra	70	75
Kingston, Ware, and town-made	69	70	75
Brown	64	63	43
RYE	40	42	33
OATS, English, feed 26 to 32	Potato	30	35
Scotch, feed	00	Potato	00
Irish, feed, white 23	26	Fine	28
Ditto, black	23	Potato	27
BEANS, Mazagan	43	Potato	27
Harrow	43	Potato	27
PEAS, white, bolters	45	Potato	27
Maple 46 to 48 Grey, new	45	Potato	27
FLOUR, per sack of 280 lbs., Town, Households	56	Potato	27
Country, on shore	40 to 50	Potato	27
Norfolk and Suffolk, on shore	46	Potato	27

#### FOREIGN GRAIN.

		Shillings per Quarter.	
WHEAT, Dantais, mixed	68 to 70...old, extra	74	78
Königsberg	68 71...extra	68	73
Rostock	68 71...fine	72	74
Silesian, red	66 68...white	68	73
Pomer., Meckberg., and Uckermark	red old	68	72
Russian, hard, 58 to 61...St. Petersburg and Riga	61	63	63
Danish and Holstein, red 63	65...American	64	67
French, none	65...Rhine and Belgium	00	00
Chilian, white 71	California 73	30	77
BARLEY, grinding 32 to 34...distilling and malting	35	40	40
OATS, Dutch, brewing and Poland 26 to 33...feed	23	28	28
Danish and Swedish, feed 24 to 30...Stralsund	24	29	30
Canada 23 to 25, Riga 27 to 28, Arch. 27 to 28, P'sbg.	29	30	30
TARES, per qr.	40	42	42
BEANS, Friesland and Holstein	45	46	48
Königsberg	43 to 46...Egyptian	43	44
PEAS, feeding and maple	43	44...fine bolters	44
INDIAN CORN, white	35	43...yellow	39
FLOUR, per sack, French	51	50...Spanish, p. sack	50
American, per brl	30	33...extra and d'ble	34

#### IMPERIAL AVERAGES.

For the week ended June 13, 1868.

Wheat	23,127½ qrs.	67s. 6d.
Barley	847½ "	42s. 2d.
Oats	1,327½ "	30s. 4d.

#### COMPARATIVE AVERAGES.

WHEAT.			BARLEY.			OATS.		
Years.	Qrs.	s. d.	Qrs.	s. d.	Qrs.	s. d.		
1864...	70,298½	39 6	1,821	27 11	3,636½	20 0		
1865...	51,802	41 1	1,073½	27 3	2,161½	23 8		
1866...	48,275½	47 4	728½	36 0	1,368½	25 9		
1867...	39,767½	65 9	1,012½	36 2	1,807½	27 8		
1868...	23,127½	67 6	847½	42 2	1,327½	30 4		

#### FLUCTUATIONS in the AVERAGE PRICE of WHEAT.

PRICE.	May 9.	May 16.	May 23.	May 30.	June 6.	June 13.
74s. 7d.	...	...	...	...	...	...
74s. 3d.	...	...	...	...	...	...
73s. 10d.	...	...	...	...	...	...
72s. 3d.	...	...	...	...	...	...
70s. 8d.	...	...	...	...	...	...
67s. 6d.	...	...	...	...	...	...

#### BRITISH SEEDS.

MUSTARD, per bush., brown 12s. to 13s. white	8s. to 10s.
CANARY, per qr.	68s. 74s.
CLOVERSEED, red	64s. 56s.
CORIANDEE, per cwt.	20s. 21s.
TARES, winter, new, per bushel	6s. 6s. 6d.
TREFOIL	21s. 22s.
RYEGRASS, per qr.	18s. 20s.
LINSEED, per qr., sowing 65s. to 68s., crushing	60s. 62s.
LINSEED CAKES, per ton	£11 5s. to £11 10s.
RAPSEED, per qr.	68s. 69s.
RAPSEED CAKE, per ton	£5 10s. to £6 0s.

#### FOREIGN SEEDS.

CORIANDEE, per cwt.	21s. to 22s.
CANARY	44s. 45s.
CLOVERSEED, red 44s. to 46s., white	64s. 70s.
TREFOIL	18s. 20s.
RYEGRASS, per qr.	17s. 18s.
HEMPSEED, small 38s. per qr., Dutch	40s. 42s.
LINSEED, per qr., Baltic 68s. to 69s., Bombay	61s. 62s.
LINSEED CAKES, per ton	£10 10s. to £11 0s.
RAPSEED, Dutch	60s. 62s.
RAPSEED CAKE, per ton	£5 10s. to £6 0s.

#### HOP MARKETS.

BOROUGH, MONDAY, June 22.—Our market remains without alteration, trade showing no improvement, and prices continuing only nominal. The fine weather which has prevailed during the past week has improved the appearance of the plant; but rain is much needed in some districts, fire-blast having already been noticed. On the whole, however, the reports from the plantations must be considered satisfactory. Continental prospects are equally good, making the markets flat. Belgium shows more inquiry, the stock held being small. New York advices to the 9th inst. report the market as very inanimate; and the bine, with few exceptions, is healthy and vigorous in every section.

Mid and East Kent	24 5	25 5	26 15
Weald of Kents	4 0	4 15	5 12
Sussex	3 15	4 4	5 0
Farnham and country	5 0	6 0	6 6
Yearlings	3 5	3 10	4 4

#### POTATO MARKET.

#### BOROUGH AND SPITALFIELDS.

LONDON, MONDAY, June 22.—Very few old Potatoes are on sale, and the quotations of such are nominal. For new produce, of which a fair supply has been on sale, there has been a limited demand at our quotations. The import into London last week consisted of 2 tons from Antwerp, 5 Bologne, 565 Dunkirk, 11 Havre, 102 Rotterdam, 487 bags Gibraltar, and 752 boxes from Cherbourg.

Kent and Essex Wares	8s. to 10s. per cwt.
Scilly	7s. " 9s. "
Jersey	8s. " 9s. "
Lisbon	6s. " 7s. "
French	6s. " 8s. "

POULTRY MARKETS.—Goings 5s. 6d. to 7s., Ducklings 2s. 6d. to 3s. 6d. each. Surrey Fowls 10s. to 12s., ditto Chickens 6s. to 8s., Barndoor Fowls 4s. 6d. per couple. English Eggs 8s. to 9s., French to 7s. to 7s. 6d. per 100.

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fields too small; and for the first time we saw some underdraining in progress. We are now in Dorsetshire, amidst capital dairies; much meadow land. The country near Gillingham nicely undulating, mostly under grass; the land a heavy soil. Shaftesbury-on-the-Hill to our right; the same order of dairying and culture, with an occasional water-meadow, are seen; the crops of wheat,

oats, and beans are good, but oats late. We now have more culture; the valleys good and grass superabundant; culture good, and preparations for turnips going on. Near Dinton we observed small fields, much grass, and all roughly managed. We come upon much wood again to our right; the Dorset and Wiltshire Downs in the distance. We soon reach Salisbury, where my notes cease.

## ON GREEN MANURING.

The progress which has been made in every department of industrial art during the last twenty years is considerably greater than we are ready to acknowledge, until a careful consideration of the subject gives evidence which proves beyond doubt that advances and improvements, which may be small in their individual character, have carried us far onwards in the path of economy and productivity. The practice of agriculture has during this period advanced as rapidly as any of the industrial arts, and those who have so ably co-operated in promoting improvements may congratulate themselves upon the results which have been obtained. It often happens that when the stream thus steadily progresses, we find that we overlook some matters of interest to which we may again turn with advantage.

One important detail of agricultural practice which has been somewhat overlooked during the interval referred to is again attracting the attention of those who are likely to encourage its extension. We refer to the practice of green-manuring. This proceeding, as is well known, consists in the growth of green crops for the express purpose of the vegetable matter so produced being added to the soil, and thereby increasing its productivity. In some parts of the country the employment of green manures is a well-established and very successful practice—one that is steadily persevered in, and with highly beneficial results, and it will be readily acknowledged that its more extended adoption will in many cases prove to be advantageous.

It does not involve any abstruse theories if an explanation be given of the practice here referred to. In the growth of a crop, we have two sources of food which are available for its requirements. We have the soil, as the source from which all the mineral matter of the plant is derived, together with a small portion of the organic or combustible portion; and the atmosphere, from which the growing plant draws the chief portion of its organic constituents. If the soil had been the only source of food, the growth of a crop could not have added any new material to the land, and could not have increased its fertility in this manner. It is perfectly true that the materials would by the processes of growth have been altered in their condition and modified in their character. Scattered as they might previously have been, and in a condition only slowly available for vegetation, they have been collected by the fine searching roots of the plant, and are in a condition more ready for use than prior to their being absorbed into the growing crop. As a natural consequence, even the mineral matter required for one crop is thus gathered and rendered more immediately available by the assistance of the preceding crop. But when we consider the large amount of vegetable matter which is accumulated from the atmosphere and then incorporated with the soil, we cannot fail to be struck with surprise at the fertilizing matter thus added to the soil. Rich as such manure is in its composition, it has the advantage of being ready for use by the succeeding crop just as the nourishment is required—not liable to be washed from the land and wasted; but as the process of decay pro-

ceeds, so does the decaying matter liberate the imprisoned elements of nutrition, and place them at the disposal of the growing crop.

We must not look upon this increase of nutriment as the only action resulting from the use of green manures; for, if so, it would become a simple matter of calculation whether or not we could purchase these supplies of manure, and add them to the soil, at the same cost. This is, undoubtedly, a very interesting subject for research, and one which will well repay the scientific agriculturist for the consideration it demands, and in its economical bearings will be most important. Few will be prepared for the diminished cost at which a given quantity of ammoniacal manure can be gathered from the atmosphere by a growing crop, and then added to the land, as compared with the purchase of the same quantity of manure, even when obtained in its most economical form. It is, however, upon the mechanical influence of green manures, as well as on their chemical action, that their value so much depends.

Upon the strong clay soils this mechanical action is exceedingly important. Many of these soils, whilst containing abundant stores of fertility, have such a dense and compact character, that there is great difficulty in carrying out the ordinary tillage operations whereby the soil is prepared for the growth of the crop; and after the necessary preparation has been well performed, such soils are predisposed to revert to their original condition, and become as dense and compact as ever. The peculiar influence of green manures upon these soils is that by their incorporation they impart a porosity and friability to the land which very much encourages the growth of the roots. They are thus able to penetrate the soil more freely and more perfectly, and to search for the nutriment required by the crop. This enables the crop to take advantage of the natural fertility of the land; and the cultivator obtains practical proof of its pecuniary importance.

The action is materially modified upon sandy and loamy soils, where we have to contend with an absence of that density and tenacity of character which we desire to overcome in the case of strong and tenacious clay soils. When green manures are ploughed into sandy soils, the action which is observed upon them is an increased capability for retaining moisture; and even manure, which previously could not withstand the wasting action of the rain, but was liable to be soon carried down into the subsoil, is preserved by the vegetable tissues thus added to the land. The influence has been of very great importance upon very light and frequently blowing sands; for by the agency of green manures these have been ameliorated so as entirely to alter their character, and thereby a foundation has frequently been laid, preparatory to the more ordinary tillage operations; and superior turnip and sheep-farms have thus been formed upon barren and worthless tracts of land.

There are, however, certain qualities of growth which should characterise the crop selected for the purpose. Rapidity of growth and a suitability for the soil upon

which it has to be grown are essentially necessary. Mustard, buckwheat, and lupin have been most extensively used, and offer a choice according to the character of the soil and district, each possessing its especial merit, and becoming, under various circumstances, most suitable for cultivation for the production of green manure.

It is also very desirable that the age of the crop at the time it is ploughed into the land should be carefully controlled. Whilst the plants are in a condition of luxuriant growth, and just as they are preparing to bloom, the juices are most fully charged with nitrogenised matters, and are in their richest condition. This stage being passed the condition of the fertilising ingredients changes

in its character, and some of the more valuable become imbedded in woody fibre from which they are not readily available. An overgrown crop is therefore not only more injurious to the land, but it is less useful as a preparation for any succeeding vegetation.

There is another beneficial result which has followed the use of green manures, and especially mustard, which is the destructive influence it appears to exert upon the wire-worm, one of the wheat-farmer's greatest pests. So beneficial has its influence been regarded that in some districts its cultivation is especially encouraged for this reason.

## AGRICULTURAL STATISTICS OF VICTORIA.

We have recently received an official copy of the agricultural statistics of the colony of Victoria for last year, and as there are some important facts to be gleaned from a careful perusal of this document, we shall abstract a few of the statements for the information of our readers. Although some attention is still given to gold mining, the exports of gold averaging about £6,000,000, agriculture and sheep-farming occupy now very prominent places in the industry of the colony. The export of wool now reaches 43,000,000 pounds, or more than double what it was at the time of the gold-seeking mania in 1853. The horses in the colony have quadrupled, there are double the number of sheep, and the cattle keep steady in number and quite adequate to the wants of the increased population; the population in the colony having doubled in twelve years.

The occupied land in the colony now amounts to 7,947,455 acres. The area occupied during the last ten years amounts to 5,840,930 acres, or more than three-fourths of the whole extent of land at present under occupation. The average size of holdings is 325 acres; that of the lots usually devoted to farming pursuits, 104 acres. The average area in occupation to each individual in the colony is 11.5 acres. In the last ten years, settlement has progressed in a faster ratio than population.

The land enclosed amounts to 6,970,106 acres; of this 1,151,228 acres were fenced-in in 1867. The average area cultivated by each holder is 21.7 acres, of which freeholders contributed 70 per cent., and non-freeholders 30 per cent. The average area cultivated by farmers is 25½ acres, and by squatters 52½ acres. Farmers cultivated 18 per cent. of the land they occupied, and squatters 1 per cent. of the alienated land attached to their runs. The extent cultivated by each occupier was greatest in the year 1861, when the average was nearly 31 acres; since that period the tendency has been for settlement to outstrip cultivation, so far as the number of occupiers is concerned. Comparing the land in cultivation with the population of the colony, on an average, 100 acres are cultivated to every 109 individuals. Should cultivation advance in the same ratio, in relation to the increase of population, the next returns should show a proportion of not less than an acre under tillage to each head of the population. This proportion has already been exceeded both in New South Wales and South Australia. In the former colony, according to the latest returns, with a population of 431,000, the number of acres placed in cultivation amounted to 451,000, or a fraction over an acre per head; and in South Australia, during the last season, no less than 4.37 acres were placed under tillage to each individual in the community.

The numbers of live stock returned for Victoria are as

follow: Horses, 121,381; cattle, 598,968, of which 140,414 were milch cows; 8,833,139 sheep, and 74,708 pigs. In ten years there has been a net increase of 73,549 in the number of horses, of 4,191,591 in the number of sheep, and of 22,481 in the number of pigs, but a falling off of 47,645 in the number of horned cattle. There are nearly 15 head of stock of all descriptions to each man, woman, and child in the colony, consisting of about one-fifth of a horse, one head of cattle, 14 sheep, and one-tenth of a pig; and about 111 head to the square mile, namely, 1½ horses, nearly 7 cattle, 102 sheep, and less than one pig.

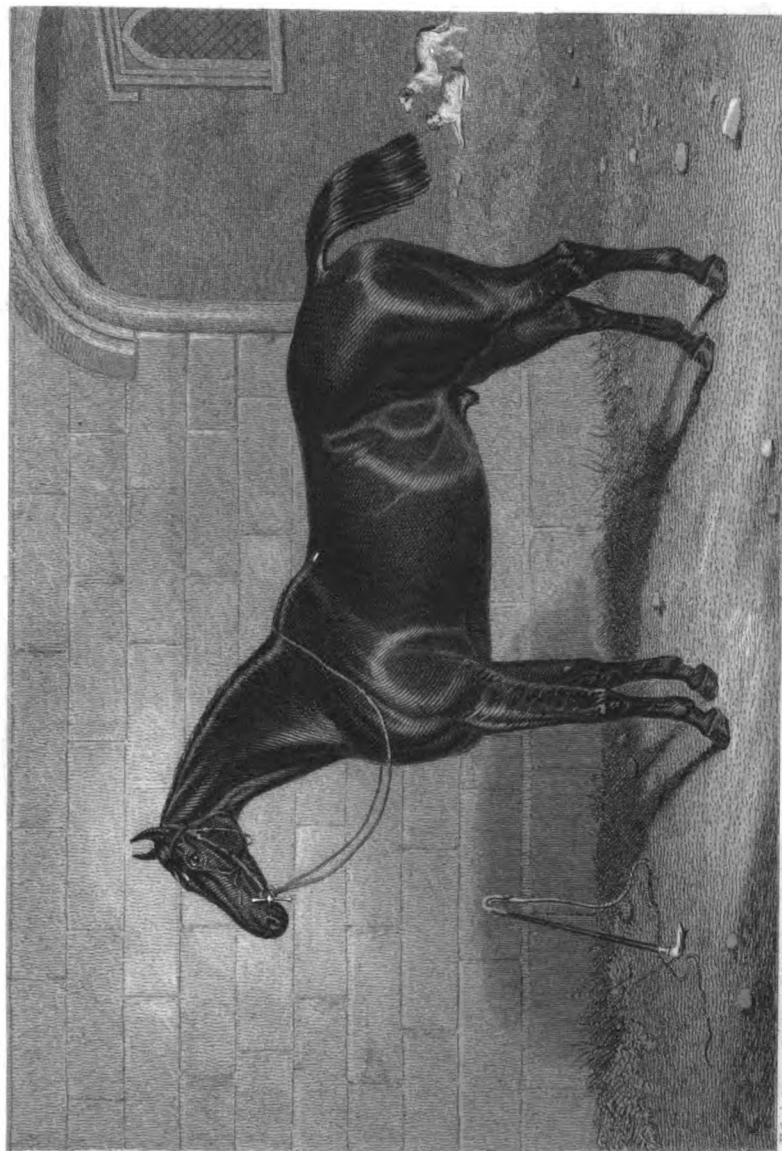
In all the Australian colonies, including Tasmania and New Zealand, there are upwards of 600,000 horses, nearly 4,000,000 cattle, 38,500,000 sheep, and nearly 400,000 pigs, or more than 43,000,000 head of stock of all descriptions distributed throughout the group. New South Wales still heads the list in 13¼ millions; Victoria stands second, 9,628,000; Queensland third, 8,264,000; and New Zealand fourth, 5,297,000. New South Wales and Queensland are still the great grazing colonies, as they own 2,700,000 head of cattle, and Victoria has under 600,000. As a sheep-breeding colony Victoria stands in an equally good position, surpassing Queensland by nearly 2,000,000, but outstripped by the older colony New South Wales, which owns more than 11½ million sheep.

Passing now to an examination of the agricultural resources and production of Victoria, we find that the most important crop cultivated is wheat, which covered 208,588 acres, and produced 4,641,205 bushels. The average produce per acre was—wheat 22.3 bushels, oats 30 bushels, barley 30.2 bushels, potatoes 2.7 tons, hay 1.7 tons. Four years ago vines only covered about 2,000 acres in Victoria, less than one-half the extent of ground now devoted to that culture. The vines number 8,231,022, more than half of which are in bearing. The grapes gathered last year amounted to 60,659 cwt., of which 43,395 cwt. were made into wine. The cultivation of tobacco is not increasing in Victoria, the acreage having declined from 623 acres in 1864 to 243 acres in 1867.

If we inquire into the area of land in cultivation and the extent sown with different crops in all the Australian colonies, including Tasmania and New Zealand, we find that close upon 2,500,000 acres are under tillage. The greatest amount of cultivation (739,714 acres) and of lands under vines, wheat, and miscellaneous tillage is in South Australia, as is also the largest extent under hay, if New Zealand (which only returns sown grasses and not hay) be excluded. Victoria can boast of the largest extent under oats and potatoes, and New South Wales the largest ex-







# *Mountain Dew*

*At the request of the property of Captain H. H. Hatcher, of the 1st Regiment, New York, 1863.*

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# *The Return Provisions*

London: Published by R. Jackson & Tinsley, 263 Strand. 1847.



### PLATE III.

#### MOUNTAIN DEW: A PRIZE HUNTER.

THE PROPERTY OF CAPTAIN E. N. HEYGATE, OF BUCKLAND, LEOMINSTER.

Mountain Dew, bred by Captain Heygate, in 1862, is by the Era, out of Whisky by Windhound, her dam by Linguist—Dick Andrews.

The Era, foaled in 1840, was by Plenipotentiary, out of Sister to Memnon by Whisker, her dam Manuella by Dick Andrews. The Era, a very neat horse, was successful alike on the turf and the show-ground, having won some good races at long distances, and taken a number of prizes as a stallion calculated to get hunters.

Whisky, bred somewhere in the neighbourhood of Dumfries, and foaled in 1853, was purchased, when a four-year-old, by Captain Heygate, of Mr. Daggs, of Annan, tracing her title to a libation over which the bargain was sealed. The mare, a black brown, was hunted for four seasons, by Captain Heygate, in Leicester, Yorkshire, and Cumberland, and a wonderfully good one she turned out. She never tired, and was a famous jumper, particularly at water, taking one day, at the finish of a long run with the Hurworth, the river Wisk, when no one else would have it; and her owner there and then declining a long price for her from Mr. Cookson. At eight years old, although still quite sound, she was put to the stud, her first foal being born dead; her second, Mountain Dew by the Era; her third, Denmark by the Era; her fourth, Britannia by Ancient Briton; her fifth, Curacao by Kempton; her sixth, a yearling filly O. D. V. by Double X, and a foal, Norma by Ancient Briton, now at her foot. With Denmark at her side, Whisky took the second prize for hunting brood mares, at the Royal Society's meeting at Worcester, and the first prize at Ludlow and Leominster, in the same year; while all her stock have been winners. The successes of the two brothers, Mountain Dew and Denmark, are well known; Britannia, now at the stud, won several premiums as a two and three year old; and Curacao, although only a week up from the field, was the best of her class at the last Birmingham show. The yearling, said to be a beautiful filly, has, we believe, never been out; but the foal was another credit to her dam, as they walked round the ring at Leicester. Whisky herself is rather a coarse-looking mare, showing more power than breeding; but with capital clean

limbs, and she was here again a good second in the brood-mare class.

Mountain Dew is a black horse, now six years old, standing sixteen hands and an inch high. He has a good sensible head, with a neck that was somewhat light; but this has thickened so much since our portrait was taken, that it can now be scarcely called so. He has good shoulders, with hunting withers, and a deep barrel; but he is just a trifle flat in his ribs; he has good loins and quarters, with lengthy muscular arms and thighs, and first-rate joints, while the knee and hock are well let down to the ground. But it is not as a stand-still horse that Mountain Dew is seen to perfection, or even when going round the circus at Islington, or over a course as hard as a turnpike road at Leicester. Let him the rather extend himself on a good reach of ground, with a bit of a bite for his feet, and then will he bring his hind legs well under him in a style never to be forgotten by those who can appreciate the action of a hunter. Mountain Dew, in fact, is something more than a mere show-horse, great as has been his success in this way. He was put into work at three off, beginning the season in Herefordshire, and going on into Leicestershire with his owner's other horses in December. Captain Heygate's own weight is about 12st., but that of his groom nearly 14st., though this difference is apparently none to Mountain Dew, who goes as well with one as the other. Last winter he had a very hard season of it in Leicestershire, coming three days a fortnight, or frequently twice a week, with long distances to cover and home again. Mrs. Heygate often rode him with hounds as a three and four year old, as she still does in the summer as a hack; and he is a very charming lady's horse, with a temper so good, that when lying down in his box, the Captain and his little boys will sit on his back, and he will eat out of their hands. He is a capital horse through dirt, and altogether a perfect hunter, at least until he took to public life; but on this point we shall prefer to let Captain Heygate speak for himself: "I think the horse has been much spoilt by jumping at shows, the worst thing ever introduced, except to collect a crowd. During the early part of last season I could hardly ride him at a fence, he

was so excited; but towards the end I got him much quieter; though this was the reason he refused at Islington." When will gentlemen and sportsmen refuse to give any further countenance to this mountebank business? which, as Captain Heygate so well puts it, is only useful to draw crowds and shillings, and that goes so far to spoil a good horse.

As a young one Mountain Dew did not make much mark in the show ring, having been paraded several times, with nothing more coming of it than an occasional commendation. Handy home, indeed, at Leominster they told the Captain his colt was only fit for a carriage-horse; while at the Bath and West of England Meeting at Hereford in 1865, Mountain Dew, with the stranglers on him, was merely commended in the three-year-old class, while his brother Denmark took the first prize for two-year-olds. A friend of ours, who acted as judge here, maintained from that moment that Denmark was the better horse of the two, but we joined issue in favour of his elder brother, and we ourselves have since "assisted" in awarding prizes to most of the family. At the Bath and West of England Meeting in the year following at Salisbury, however, Denmark again took his first prize as a three-year-old, and Mountain Dew was again commended in his class, being lame at the time from an over-reach which he got when hunting in the spring. In the autumn of this year 1866, Mountain Dew's merits came to be more recognised, and at the Abergavenny Horse Show in October he took the special prize of £25 in a large class of all-aged hunters up to 14st. In the December following, at Lord Tredegar's show at Newport, in Monmouthshire, he won the first prize of £20 for hunters up to 14st., when one of the judges thus wrote to us of his prize horse: "He pleased us more than anything we had seen, having fine even action, and doing all his leaps in splendid form. He must, if all go well with him, turn out a very valuable animal." In 1867, at the second Bath and West of England Meeting at Salisbury, Mountain Dew took the second prize in the All-aged class of hunters, being beaten for first by the famous Irish-Yorkshire prize horse Voy-

ageur; while his brother Denmark was the first for four-year-olds, and his half-sister Britannia the first for three-year-olds. In the following month, at the Bury St. Edmund's Meeting of the Royal Agricultural Society, Mountain Dew was placed third, with a prize of £25, in the weight-carrying hunter class, against Master of Arts first and Voyageur second, of which award we thus wrote at the time: "The more we see of Master of Arts the more are we satisfied that he is a glutton for prizes, and nothing but a show horse after all. He is very well strutting round a circus, but his gallop is nothing like the strong bold stride of a hunter but short and scratchy, as if his knees were tied together. He wants a lesson from Mountain Dew." At the Manchester Meeting of the Liverpool Agricultural Society the black horse got "righted" again with the first prize of £20 for hunters up to 14st., beating amongst many others Master of Arts placed third, The Baron second, Voyageur, Sprig of Nobility, and Buffoon. At the Lichfield Meeting of the Staffordshire Agricultural Society he took the first prize of 20 gs., with Denmark highly commended; and a second prize of £10 at Tamworth, an award which led to an essential difference amongst the judges, the Yorkshireman giving his colleagues a bit of his mind *coram populo*. At Chester he took the one prize of £10 for hunters, at Wirral the first prize of £10, and later on in the autumn the first prize of 20 gs. again at Abergavenny, without any conditions as to weight. In 1868, at the Islington Horse show, he took the first prize of £80 for weight-carrying hunters up to 15st., in a class reaching to fifty of "all sorts," with Voyageur and Master of Arts amongst them. At the Birmingham Horse Show, in another large field, he took the first prize of £25 for hunters up to 15st.; and at the Leicester meeting of the Royal Agricultural Society the second prize of £25, being beaten for first by the Yorkshire mare, Lady Derwent.

Captain Heygate refused £400 for Mountain Dew at Manchester last autumn, but the horse and his brother Denmark are now for sale, as they are rather over-stocked at Buckland.

## PLATE IV.

### THE RETURN PROCESSION.

"English sportsmen will give almost anything for good grouse-shooting; and Scotch proprietors have taken advantage to demand rents which, twenty years ago, would have been incredible. No sooner is a moor in the market than it is snapped up; and thus a large amount of capital is introduced into the country, in addition to the circulating medium which is brought in at the time of the shooting season." So says Murray's *Handbook for Scotland*, as just issued—certainly one of the best works of the kind ever brought out. Although intended more especially for the use of the tourist, there is no class of traveller but who may profit

by occasionally consulting such a guide. The information is *honestly* given—a great point; and if a view or a hotel be not worthy of a visit, the stranger must be very obtuse if he cannot gather as much from his pocket-companion. The advice in this way must be particularly serviceable; but the sportsman, as usual, raises the tariff wherever he goes or whatever business he goes on, and "in some of the more solitary districts of Ross and Sutherlandshires, as the inns are limited in size, they are frequently monopolized by sportsmen;" so that the more general traveller will often find that "even chairs and sofas are not

to be obtained." The laird in the print, however, looks very much above that sort of thing. His house is his Castle; the Hill his own property; and the mountain-hare, the black cock, and the dun deer will receive the attentions of a man-cook, and have their funereal rites flavoured with the best of Burgundy. The pro-

cession has been re-formed early this afternoon, and the dinner-hour may be observed accordingly; but the late Duke of Athole, a very keen stalker, was occasionally out until 11 or 12 o'clock at night; and dinner, of course, was never served until his Grace's return.

## THE MILK WE CONSUME.

BY CUTHBERT W. JOHNSON, F.R.S.

The use of milk naturally commenced with the birth of the first mammalian. The provision thus made by Creative Wisdom for the nourishment of the new-born is far too remarkable to escape the observation of the most careless. When we proceed to examine the composition of that milk our interest and our admiration are increased. We cannot indeed fail to reflect that it was essential to adapt the food of the young animal, not only to its sustenance, but for its growth. This provision, too, was needed, not only for the enlargement of its purely organic parts, but for its bones also. Now, these requirements are all supplied in milk. We shall presently see that in it is contained an ample supply of matters essential not only to the formation of flesh and fat, but also of the phosphate of lime, of which bones are so largely composed.

We here again see the contrivance of a Divine Architect, by which every requisite is provided, every present and future want anticipated, even before the calf is born. The use by man of the milk of our domestic animals dates from a very early period. We find it noted in the earliest book in our possession (Genesis xviii. 8), and also that butter was then made from it. For many centuries the consumption of milk was confined to its use as a beverage, the manufacture of butter and cheese, or in cookery. It was only about two centuries since that its great modern employment in tea and coffee commenced. It is chiefly to the use of milk in this way and its composition that I propose to address myself in this paper. One or two valuable reports indeed have been lately made on this subject, and moreover the supply of milk to the metropolis and to other densely populated places has become of increasing importance to many of my readers.

Milk as an addition to tea and coffee is unknown in China. In that peculiar empire the infusion is made by putting the tea at the bottom of a cup and pouring upon it boiling water; it is then allowed to cool, and drunk without any admixture. Mr. Fortune, who travelled over the tea districts of China, only on one occasion met with sugar and a teaspoon. The Celestials, it appears, regard tea as of a cooling nature, so much so indeed, that the lower orders are wont to counteract this supposed effect by adding to it ginger and common salt.

Before we examine the composition of the cow's milk consumed in London, let us see what is its chemical composition as drawn from cows of different breeds. This important inquiry not long since engaged the attention of Professor Voelcker. He observes in one of his valuable practical reports (*Jour. Roy. Ag. Soc.*, vol. xxiv., p. 308):

"The Shorthorn, though more particularly distinguished for its precocity and excellence as a meat-producing animal, is nevertheless an excellent milking cow. Some families of even pure-bred Shorthorns are, indeed, distinguished in this respect; for, when well fed, they will yield much milk; and at the same time go on improving in condition. On this account they are preferred by many to Ayrshires,

Alderneys, and other breeds of peculiar or local merit, and are becoming more and more the principal dairy breed of England.

"The Yorkshire cow, essentially a Shorthorn, is the favourite breed of cow-keepers in London and other large towns, as it surpasses all others for the quantity of milk it yields. The milk, however, compared with that of the smaller breeds is more watery and less rich in butter, and better suited for direct consumption than for the making of butter or cheese. The statement made by some that pure-bred Shorthorns are not good milkers, is emphatically denied by others. The truth is, there are Shorthorns which are good milkers, and others which are not. As a rule, animals remarkable for the rapidity with which they put on flesh and fatten are not the best milkers, and *vice versa*. Shorthorns, on the whole, perhaps, are more useful for general dairy purposes than any other breed.

"In 1860, I made some experiments with a view of ascertaining whether pure-bred Shorthorns gave more or less, and better or worse milk, than cross-breeds. In the month of September, 1860, three cows from the common dairy stock, and three pedigree Shorthorns, belonging to Mr. Thomas Proctor, Wall's Court, near Bristol, were kept on the same pasture, and the milk from each set of cows carefully measured and subsequently analyzed. The pasture was good and the supply of food unlimited.

"The daily produce in milk was as follows:

"Three common dairy cows gave 31 pints in the morning, 21 pints in the evening, making together 52 pints.

"Three pedigree cows gave 28 pints in the morning, 21 pints in the evening, or together 49 pints.

"The common cows thus produced rather more milk, but the differences were trifling.

### COMPOSITION OF MILK OF COMMON COWS (ON GRASS ALONE) ON SEPTEMBER 18, 1860.

"On evaporation, the morning's milk gave:

Water	...	...	...	86.7
Dry matter	...	...	...	13.3
				100.0

"The evening's milk:

Water	...	...	...	86.6
Dry matter	...	...	...	13.4
				100.0

"As there was no appreciable difference in the concentration of the morning's and evening's milk, both were mixed and analyzed together, with the following results:

Water	...	...	...	86.65
Butter	...	...	...	3.99
*Casein (curd)	...	...	...	3.47
Milk-sugar	...	...	...	5.11
Mineral matters (ash)	...	...	...	0.78
				100.00

\*Containing nitrogen ... 0.66



"COMPOSITION OF MILK OF PEDIGREE SHORTHORNS (ON GRASS ALONE) ON SEPT. 18, 1860.—The morning's milk of the pedigree cows contained 87.6 per cent. of water, and 12.4 per cent. of dry matter, and thus was less concentrated than the morning's milk from common cross-bred Shorthorns.

"The evening's milk contained 86.8 per cent. of water, and 13.2 per cent. of solid matter, and therefore was about as concentrated as the evening's milk of the common cows.

"The following numbers show the detailed composition of this milk in the morning and evening, and the average composition of both:

	Morning.	Evening.	Average.
Water ... ..	87.60	86.80	87.20
Butter (pure fat) ...	3.56	4.16	3.86
*Casein ... ..	3.19	3.37	3.28
Milk-sugar ... ..	4.92	4.86	4.89
Mineral matters (ash) ...	0.73	0.81	0.77

	100.00	100.0	100.00
*Containing nitrogen	0.51	0.54	0.52

"Whether we regard quantity or quality, the three cross-breeds in these experiments gave rather more favourable results.

"After some time all the cows, in addition to grass, received 1lb. of good linseed-cake per head per day, and then yielded:

3 common cows ... 28½ pints of milk in the morning and 18 in the evening, or together 46½ pints.  
3 pedigree cows ... 26½ pints of milk in the morning and 22 in the evening, or together 48½ pints.

COMPOSITION OF MIXED MORNING AND EVENING'S MILK ON SEPTEMBER 24, 1860, COWS ON PASTURE AND 1LB. OF LINSEEDCAKE EACH DAILY.

	Common Dairy Cows.	Pedigree Cows.
Water, ... ..	87.10	86.50
Butter ... ..	4.28	4.28
*Casein ... ..	3.06	3.25
Milk-sugar ... ..	4.84	5.30
Mineral matters (ash)	0.72	0.67

	100.00	100.00
*Containing nitrogen	0.49	0.52
Percentage of solid matter ... ..	12.90	13.50

"The addition of oilcake appears to have slightly increased the amount of butter in the milk, but not the yield of milk itself. After the cows were kept for a week upon 1lb. of oilcake and grass *ad libitum*, 9lbs. of cake were allowed to each animal. The average yield of milk then was as follows:

3 cows produced 30 pints in the morning and 19 in the evening, or together 49 pints.

3 pedigree cows produced 26½ pints in the morning and 21 in the evening, or together 47½ pints.

COMPOSITION OF THE MIXED MORNING AND EVENING'S MILK ON OCTOBER 2 (COWS FED UPON GRASS AND 2LBS. LINSEED CAKE EACH DAY).

	Common Dairy Cows.	Pedigree Cows.
Water ... ..	86.90	86.50
Butter ... ..	3.98	4.19
*Casein ... ..	3.37	3.19
Milk-sugar ... ..	4.98	5.34
Mineral matters (ash)	0.79	0.78

	100.00	100.00
*Containing nitrogen	0.54	0.51
Percentage of dry matter ... ..	13.10	13.50

"It will be seen that the milk of the cows when kept on grass alone was rich in butter, and generally speaking more than average concentration. The grass evidently

was of good quality, and as the cows had plenty of it, we can well understand that the additional supply of linseed neither increased the yield of milk nor its richness. Indeed the yield of milk slightly diminished in October, when 2lbs. of oilcake were given, not, I believe, in consequence of the oilcake, but because with the advancing season the produce in milk gradually decreases, whilst its richness perceptibly increases."

We have already alluded to the marvellous provision made for the formation of the bones of the young in its mother's milk.

When milk is evaporated to dryness, and the dry matter burnt, it leaves, says Professor Voelcker, a whitish ash, which consists chiefly of the phosphates of lime (bone earth), and magnesia. The relative proportions of the several substances in 1000lbs. of the milk of two cows were found by Haiden to be as follows:—

	lbs.	lbs.
Phosphate of lime.....	2.31	3.44
Phosphate magnesia .....	.42	.64
Phosphate of peroxide of iron .....	.07	.07
Chloride of potassium .....	1.44	1.83
Common salt .....	.24	.34
Free soda .....	.42	.45
	4.90	6.77

As regards the effect of cake and other concentrated food upon the quantity and quality of the milk, the general result of the Professor's experiments appears to be, that, instead of adding to the produce or richness of the milk, "the additional food had a tendency to go into meat or to produce fat. This shows that we cannot increase or improve *ad infinitum* the quantity or quality of milk. Cows which have a tendency to fatten when supplied with additional food rich in oil and in flesh-forming materials, like linseed-cake, have the power of converting that food into fat; but they do not produce a richer milk, and they may even produce it in smaller quantity. It is this which renders all investigations on the influence of food upon the quantity and quality of milk so extremely difficult. According to theory it would appear that food rich in oily or fatty matter would be extremely useful for producing rich milk; but in practice we sometimes find that it produces fat and flesh instead. Sometimes its influence is even injurious; for cows supplied too abundantly with linseed-cake produce milk which does not make good butter.

"A very curious case of this kind was brought under my notice some time ago by Mr. Barthropp. He had milk which furnished cream that could not be made into butter. When put into the churn it beat up into froth; the casein would not separate from the butter, even in the cold weather of January. Mr. Barthropp had given his cows linseed-cake in considerable quantities; and this cake, perhaps for want of being mixed with a sufficient quantity of good dry hay, evidently had the effect of producing too much liquid fat. On trying to separate as much as possible the solid or crystallized fat from the liquid fat, I found that the latter was very much in excess of the former. This is the most striking instance of the influence of a great excess of oily food on the quality of cream, and consequently on the butter, which has come under my notice.

"In speaking of the quality of cream, I would take this opportunity of remarking, that bad oil-cake, and particularly bad linseed-cake, does a great deal more harm than is generally supposed by dairymen. The inferior taste of the milk is well known. The wholesomeness of the milk of stall-fed cows is further affected by the abominable matters which are occasionally put into linseed-cake. Oilcake-crushers seem now to have the privilege of incor-



porating any kind of oily refuse with linseed-cake; and since this has been the case, we have heard more frequently of diseased milk, and of milk which has a disagreeable flavour. If cows must have extra food, and linseed-cake be preferred for the purpose, the very best and purest kind of cake will answer best.

"Distillery wash, the acid water of starchmakers, and similar refuse, make milk, as is well known, watery; and this dispenses with the necessity of mixing it afterwards with water. Water is not so much added to milk as it is incorporated in the animal system before the milk is produced. It is well known that acid water, and especially water that contains lactic acid, has a tendency to produce an abundance of milk. When animals are fed with concentrated food, such as bean-meal or cake, it may, perhaps, be advisable—in the absence of brewers' grains or distillery refuse—two materials which contain lactic acid—to generate some lactic acid by keeping barley-meal for some time in contact with water, and by letting it slightly ferment, some vegetable matter perhaps being added, which has tendency to hasten the process. By doing this, I am inclined to think that concentrated food like cotton-cake, or bean-meal, or rape-cake, would be rendered more digestible—more readily available for the production of milk of a good quality."

Having thus seen what milk is in its pure state, let us next examine its quality as commonly delivered to the consumer in the metropolis. On this head we have an abundance of information in the valuable recent report of Mr. J. C. Morton (*Jour. Roy. Ag. Soc.*, vol. iv., p. 70 N.S.) Of the amount of water found in that milk, and of the causes which lead to its great adulteration we need hardly a more graphic account than that given to Mr. Morton, by "one recently in the trade," of whose letter the following is a copy:—

"I suppose it is allowed on all sides that the London milk trade is not what it should be, and that very little pure milk is sold, especially to the poor. Before attempting to remedy this great evil the causes must be ascertained. With the poor, milk is a necessary more than a luxury; and, if pure, it is a most valuable article of food. As sold to the poor it yields a much greater profit than to the upper classes, as the former nearly always 'fetch' it themselves, and thereby save the milkman the expense of distribution, which at a West-end shop costs about 0½d. a quart for a wide-spread business, and 0¼d. for a compact one: and besides this, the rent in a poor district is so much lower. But in spite of all this the poor are the worst served, and the reason is that the trade among them has fallen into the hands of such very 'small' men, who sell so little, that the business cannot yield a maintenance without help from the 'cow with the iron tail.' These same small men cannot contract with a country farmer for his milk, and therefore are in the hands of the wholesale dealers. The wholesale dealers, again, give only so low a price to the farmer that he in his turn, to make it pay, must add a little water.

"And if you go below the labouring class to paupers, they are treated worst of all. We have tendered for five or six workhouses at a price which would have given us a profit of less than one farthing a quart, and yet we have not been accepted. Tenders of 1s. 4d. a barn gallon (8 quarts) have been accepted, or 4d. a barn gallon less than our milk now costs us at our shop; and we are only paying the market value of pure milk in large quantities. The fact that a dealer offered to buy a large quantity of our 'skim,' avowedly to supply a workhouse contract for 'new,' shows what the paupers really get.

"Next, as regards the upper classes, the expense of distribution is so great that only a very small margin is left for profit on each quart; but, on the other hand, the

businesses are generally large. The bar to the sale of pure milk among the better classes is the system of percentages to servants. They all expect 5 per cent. on the gross amount of their master's bills, and this is just about what would be net profit on an honestly conducted West-end business. If this is not paid the milkman is 'worked out.' So, to avoid this unpleasant process, he commences by adding water sufficient to pay this tax, and as that seems to pay well he soon doubles the quantity. We lose two or three customers a week from the servants, but we continually get more new ones, as pure milk will draw in spite of all this.

"I have forgotten to mention a rascally trick of the milk trade, which deserves exposure; I mean the selling cream in quantities short of imperial measure. When we began our business we were forced to have cream-cans of correct measure made on purpose, as the tinman assured us that no dairy-man in London sold cream except in measures 25 per cent. short, and consequently he had no others. We have found this to be true by measuring the cans of many other dealers. The milk, however, is sold in proper measures."

The commercial portion of our inquiry is that of which my reader will very naturally wish for information. On this portion of our inquiry, I will again quote from the paper of Mr. Morton, who has pretty well exhausted the question. He observes (*ibid.*, p. 94):—

"From returns, collected some little time since for the Society of Arts, from asylums, schools, and institutions (not infirmaries, or hospitals, or workhouses, where special dietaries exist), it appeared that 2-5ths of a pint of milk a-day is the average quantity which a mixed population of healthy people consumes when its diet is under medical direction. And in some places the actual consumption approaches this quantity. Thus the town of Stirling, which has a population of 12,500 persons, was then supplied by 190 cows in the town, besides 200 gallons a-day of buttermilk (a most nutritive and useful food) brought in by rail and otherwise. There was here a cow to every 60 people; and this, at the average of 800 gallons yearly to every cow in milk gave 100 imperial pints per annum to every man, woman, and child, or about 2-7ths of a pint a-day a-piece, very nearly the medical standard; and indeed exceeding it when the 200 gallons a-day of buttermilk are taken into account, for this would furnish half a pint a-day to the 3,200 belonging to the labouring class in a community of 12,000.

"The English town of Mansfield may be fairly compared with the Scottish town of Stirling. It contains about 10,000 people, and 108 cows. Taking these at 800 gallons a head per annum, and adding 20 gallons of skim milk daily, of which I heard as being sold in the outskirts of the town, there were only nine gallons (72 pints) per annum for each inhabitant, or 1-5th of a pint a-day a-piece—one half the medical standard.

"Take, now, Bedford:—It contained in 1865, at the time of my inquiry, about 15,000 people, and 100 cows: and 123 gallons of milk, the daily produce of about 50 other cows, were brought in daily by railway. 150 cows to 15,000 people are one cow to 100 people, about the same as at Mansfield; and this, at 800 gallons a cow, is about 70 pints a year, or 1-5th of a pint a-day a-piece—one-half the medical standard.

"If then 1-5th of a pint a-day be taken as the quantity, not which ought to be, but which is consumed in general by a mixed population of English people, then the 3,000,000 of our London population require 300,000 quarts a-day; and this, at 10 quarts a-day from each cow or rather from each stall, indicates 30,000 stalls occupied by cows kept upon the London plan as needed for the London milk supply. And if people were fed according

to the medical rule of our selected institutions, twice this number of stalls, representing about three times that number of cows per annum, would be needed for the supply. At the time of my inquiry into this subject, two years ago, I ascertained that the usual number of cows kept within the metropolitan district was about 24,000; and between 30,000 and 40,000 quarts of milk a-day, in addition to the town production, were then being brought in from the country, which must have needed 8000 or 4000 cows for its production; so that the total number of cows then engaged in supplying London fell considerably short of the number indicated by the average of such towns as Bedford and Mansfield.

"During the cattle plague more than half of the 24,000 London cows disappeared, and the railway delivery of milk rapidly increased, and though, as the London cow-houses have again filled, the country trade has somewhat declined, yet the quantity still delivered is very great indeed.

"The following table, of which the figures have been most obligingly supplied to me by four of the leading metropolitan railways, indicates the growth and, in some measure since the spring of 1866, the decline of the trade.

MONTHLY DELIVERY OF MILK (IMPERIAL GALLONS)  
BY METROPOLITAN RAILWAYS.

	Great Western.	North Western.	Great Northern.	Great Eastern.
1865.				
January .....	8954	14168	14904	76818
February .....	9460	18024	15276	76846
March .....	14590	12752	16416	74788
April .....	11775	10242	18216	84452
May .....	19050	6624	20124	69891
June .....	14932	6656	20392	68212
July .....	12791	8480	20556	82525
August .....	23474	23152	20952	70005
September .....	59782	76160	21924	101212
October .....	103214	123952	26016	112890
November .....	116802	116700	27576	88714
December .....	140293	148296	27180	109325
1866.				
January .....	143600	155952	30348	95269
February .....	186764	143880	31608	106483
March .....	201686	158484	33516	116700
April .....	211016	142188	35516	145647
May .....	285918	125208	39492	120993
June .....	221851	95352	37512	120178
July .....	166892	80304	39012	109973
August .....	153766	64572	38292	109431
September .....	110159	53772	35280	109362
October .....	115834	63072	36444	107955
November .....	120346	59936	35316	107542
December .....	126819	66564	33336	109293
1867.				
January .....	118870	63480	31068	110048
February .....	131210	54648	29784	102500
March .....	156579	61908	37128	106228
April .....	122979	60696	36180	106510
May .....	160628	54156	38316	106968
June .....	125499	49800	40212	109107
July .....	112233	49752	43392	105542
August .....	118720	39084	42744	105487
September .....	95965	38088	39788	109605
October .....	86668	50640	40728	107561
November .....	149510	50652	38772	128084
December .....	123121	60528	37884	126784

"It is this aspect of the subject which more than any other is directly interesting to the readers of this journal. So large an increase in the quantity of milk brought up to

town as took place during the cattle plague indicated of course a very considerable alteration in the management and industry of many a dairy district. And as the facilities offered by the London railways increase, and the methods of transmitting milk with safety are improved, so no doubt we may expect an extension of the trade between the London milk dealer and the country dairy farmer. The latter cannot generally make more than 7d. a gallon by cheese or butter and pork or bacon; and if the London milk dealer will give that or a little more at a distant railway station, it may be for the interest of the farmer to give up the expense and labour of dairy management, and in their place incur the risks and costs of a new and unaccustomed trade. The exchange has not always been satisfactory: for until, by cooling the milk before starting and by perfectly filling the cans and carrying them without excessive shaking, the liabilities to souring and spoiling on the road have been diminished or avoided, great losses, especially in hot weather, have been and will be suffered.

"I say nothing here of other risks which interfere with the extension of this trade—the risk of bad debts which the farmer runs and the risk of adulterated milk which the dealer runs—for these are common to all commercial dealings. A London wholesale cowkeeper will receive from his customer who comes to his cowhouse and milks his cows 8d. or 4d. an imperial gallon more than the farmer will receive for country milk delivered, with all its charges paid, at the London terminus; not only because it is the produce of specially fed cows and perfectly fresh, but because it is certain to be unadulterated. I was told the other day by a London milkman that every barn gallon of such milk as his would "bear" a quart of water without any chance of the adulteration being detected by an ordinary consumer; and he had known that quart put in before the milk had left the country farm on its railway journey. The mere risk of such dishonesty is enough to lower the market value of the article to dealers, who probably would rather benefit by some such dilution than suffer from it."

These facts (and other practical details abound in the paper by Mr. Morton from which I have quoted so much) will hardly fail to interest the reader. To the general student, the provision of milk for the sustenance of the young, its chemical composition, and its vast importance, when we employ it in our daily food; will all afford matters of abounding interest. To the agriculturist such details will reasonably suggest the inquiry as to a better supply of food to the milch cow, and of pure milk to densely populated places, and an improved mode of conveyance from distant dairies; and above all, the best means for its preservation until it reaches the consumer, from "the cow with the iron tail," will not escape his attention.

**THE ASSESSMENT OF WOODS AND GAME.**—Mr. Sewell Read and Mr. Jasper More have introduced a bill which runs as follows—"Whereas it has been held by the courts of law that woods and plantations, other than saleable underwoods, are not liable to be rated to local rates: And whereas the right of sporting, when reserved by the owner of the land, or let to any person not being the tenant occupying the land, is not liable to be rated to local rates: And whereas it is expedient that such distinctions and exemptions should cease: Be it therefore enacted by the Queen's most excellent Majesty, by and with the advice and consent of the Lords spiritual and temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows: 1. From and after the first of January, one thousand eight hundred and sixty-nine, every description of woods and plantations in England and Wales, not now liable to be rated for

the relief of the poor and other local rates, shall be liable to be rated to such rates, and the occupiers of all woods and plantations shall be rated forthwith, under the provisions of twenty-five and twenty-six Victoria, chapter one hundred and three, and such other acts as regulate the assessment of other tenements and hereditaments to local rates. 2. For the purpose of assessing land let for agricultural purposes the gross estimated rental shall be the full rent at which the land, irrespective of any reservation of game or timber, might reasonably be expected to let from year to year, free of all usual tenant's rates and taxes, and tithe commutation rent-charge, if any; and when such land is occupied by the owner the gross

estimated rental shall be so assessed without any reduction whatever for any game or timber which may tend to greatly depreciate the agricultural value of such land. 3. Where any tenant shall pay any increase of rate by virtue of this act on any land which he may occupy under any lease or agreement at the time of the passing of this act he shall be entitled, during the currency or continuance of such lease or agreement, to deduct from any rent he may pay for such land the amount of the increase of such rate from such rent, and the amount of such increase shall be fixed and declared by the Assessment Committee of the union in which the land is situate."

## ON THE SUPPLY OF MOISTURE REQUIRED BY LAND.

The per-centage of moisture required by land to produce the highest degree of fertility is very various—other things, as temperature, being the same. Reduced to the form of a practical question, it may be thus individually put by farmers: What is the degree of moistness required by this or that field of mine, to place it in the highest state of productiveness, for the different kinds of crops, during the different months of the year? The general proposition, therefore, relative to the quantity of water required by fertile soils to produce abundant crops, appears at first sight very simple. It is, however, otherwise when its details are practically entered upon, for then its dimensions exceed in magnitude those of almost all others in connection with successful agriculture.

The supply of moisture to land to produce fertility is so closely connected with that of air, heat, and light, that in any practical proposition the former cannot be separated from the latter. Thus, when air is excluded by moisture, heat is also partially excluded, much of it being carried off by evaporation from the surface; but when the soil has a proper supply of air in its texture, more heat is absorbed and less carried off by evaporation, so that the difference between the two conditions is very considerable.

The grand question of questions, however, is the proper distribution of air and moisture in the soil, so as to produce the best effect. It is a well-authenticated fact, that the heavy showers of rain which fall at this season of the year on some soils displace much air. Hence the manner they cool the land, taking into consideration the amount of heat carried off by the excessive evaporation after a heavy shower. But when the land is properly drained, the excess of moisture is soon drawn off, when the supply of fresh air rushes in to supply its place. But the two processes thus briefly noticed—the first, the filling up of the interstices of the soil with water, and the removal of air from the soil, with the compression of what air remains within the soil; and the second, the drainage of the excessive moisture and the fresh supply of air—are very different on different soils, and in different states of the same soil. And such diversities depend much upon the distribution of the air and water in the soil, whether by normal or artificial means, *i.e.* whether produced by the natural state and quality of the land, or by drainage, cultivation, manuring, and cropping.

Of natural examples the richest soils are those that maintain a highly subdivided state, and which have much decaying vegetable matter in their texture—land that cannot be drowned in wet weather nor burned up in dry. They are soils that always retain a suitable supply of air and moisture at all seasons for every kind of crop sown, that is adapted for the climate.

These important results are due more, perhaps, to the chemical qualities of such soils than to their mechanical construction. The more practical question, however, is the joint co-operation of both these agencies. Thus the presence of a large amount of decaying vegetable matter has a great affinity for both air and water. It has also a powerful capillary attraction in bringing up water from below, to supply what has been removed by the crops grown, or by evaporation when lying in fallow or before the crops cover the ground. By the former—a strong affinity for water—they not only retain the moisture in them, the force of affinity thus counteracting that of evapo-

ration, but they also abstract from night-dews and the air drawn into them from the atmosphere much moisture, which they supply to the roots of crops. Water is also chemically formed in them during the chemical changes that take place. From the air contained in the interstices of such soils and in the texture of decaying organic matter, and also in the pores of decomposing inorganic matter in a highly subdivided state, much less of it is displaced by heavy showers of rain than what takes place on poor soils of a different description. And, as the air thus left is compressed, its expansive action assists in the drainage of the land. The compressed air thus performs a mechanical function, as well as the chemical one of supplying its oxygen in the process of decomposition. And, as compressed air gives out heat, it keeps up the temperature of the soil to a degree favourable to the fertilising process and the supply of food to plants. From experiments made on the Continent by Schönbein, it appears that, "in every case where water is evaporated, the nitrogen of the atmosphere combines with the oxygen and hydrogen of the water, so as to form nitrate of ammonia;" and from experiments made in this country, when similar fertilising results were obtained, the high fertility of such soils, and the continuance of heavy crops produced by them for years in succession, may yet be traced to the above combined function of air and water in the soil. But, be this as it may, farmers have from time immemorial been familiar with the high degree of fertility which such soils possess under the conditions in question.

Of artificial examples, where a high degree of fertility is produced by drainage, cultivation, manuring, and judicious cropping, those are the richest that approach the nearest to the natural examples relative to a finely subdivided state of soil, air, and water. But in examples of this class the presence of decaying organic matter, and also a suitable supply of the inorganic food of plants, are essentially necessary to produce the required chemical affinity for air and moisture, mere mechanical subdivision being insufficient to produce the desired fertilising effect. Thus some of the poorest and most worthless soils in the kingdom are in a finely subdivided state, and possess a degree of capillary action highly injurious to their fertility, as the quantity of water which they raise and contain excludes the requisite supply of air required by most cultivated crops. Hence their proneness to produce aquatic plants, as rushes, &c.

It follows from these preliminary observations under this head, that the works of drainage, cultivation, manuring, and cropping, require each to be carried out with due regard to the quality of the soil and the nature of the season, in order to fit the land for the retention and supply of moisture to growing crops, works which involve a very high degree of professional skill on the part of the farmer, in order to produce the desired effect. Were soils of a uniform quality, it would be a comparatively easy matter to lay down a general rule for the execution of such works; but uniformity of soils being the exception, and diversity the rule, so to speak, farmers must be guided by their own skill and experience, and not by book rules. No doubt book rules may assist; as for example, *Well-drain the subsoil, and pulverise the staple.* But however truthful and generally applicable such a rule may be, yet when taken to the field, it may just as well have been left

at home on the shelf, for the practical farmer requires as much skill and experience to carry it out as if he had never seen it. In short, the day is gone by when such general rules can with propriety be piped into the ears of practical farmers, for proper drainage and pulverization are questions which convey very different meanings, owing to the wide difference in the requirements of different soils. Thus, what would be generally considered proper drainage for one description of land often proves very imperfect for others; and the degree of pulver-

ization to which some soils can be reduced, so as to place them in the most favourable hygrometrical condition, is at all times a very perplexing, if not problematical question, whose proper solution depends more upon future and unknown conditions relative to the weather than upon the past or present circumstances of the case. To provide for the exigencies of the season in our fickle climate, requires no little skill on the part of the farmer to attain successful results. NEMO.

## THE DROUGHT AND ITS CONTINGENCIES.

BY A PRACTICAL FARMER.

The drought still continues, and the heat of the past week has been extremely oppressive, and almost unexampled in its continuance. We have occasionally had single days with the thermometer equally high, but not for several consecutive days, *i. e.*, from Thursday July 16th to Wednesday 22nd, or an entire week. The drought has now been full fifty-four days in full force, and much loss and difficulty is experienced; and what is more, notwithstanding every appearance and foretelling of rain, none comes. Moreover, the drought commenced at the very time when we were most anxious for summer rains or showers, to cause the growth and progress of our green crops for the sustenance of our farm stock during the ensuing winter. All is yet in abeyance. My fear is that it will prove one of the most disastrous droughts England has ever known. Had it commenced earlier or later, better provision could have been made than we shall now be enabled to make. I remember many trying seasons, but never, I think, one so arid and distressing as the present. In 1817 the drought commenced Aug. 31st and lasted till Nov. 2nd, followed by a severe winter, but then we were well provided with turnips and other winter food. In the next year it was much worse and lasted much longer, beginning May 17th and continuing to Sept. 1st, *i. e.*, 108 days, but there were to be found some tolerable crops of turnips, and the hay crop had a start and was fairly gathered. In 1826 the drought began Feb. 28th and lasted till July 1st, 124 days. This was the most severe visitation of the kind I have known, and the distressing circumstances connected with it may be easily imagined. The heat, too, was extremely great. As for grass, turnips, or any kind of green food, there was none, and straw was all we had to fall back upon, and lucky was he who had a supply of this unusual summer food. In 1840 we had a very severe drought throughout the spring, commencing on the 25th of February, and continued to the 4th May. Such a spring seeding and such dearth of spring grasses I never knew. It was nearly midsummer before the farm stock could be put upon summer pastures. In 1844 we had another severe drought. It commenced March 26, and continued till July 1—97 days. Summer grazing was nearly thrown away, and the re-sowing of the green food crops general; but we obtained turnips and coleseed at last, although inferior crops. Hay, of course, was wretchedly bad. In 1852 we had another very severe spring drought, commencing so early as February 15 and without rain till May 6—80 days, which 80 days gave a rainfall of 0.72 of an inch. The difficulties experienced during this spring were exceedingly trying to every cattle-owner and flock-master. In 1864 we had a very dry summer: the drought began June 24 and did not cease till August 28. The green crops were woefully distressed; and in addition to the drought, we had a deplorable attack of the great drab-coloured grub, which literally consumed whole fields of fine healthy plants of mangolds and turnips, so that in

the following winter the farm stock had to subsist upon straw, hay, and artificial foods. We now come to the present season. We have had but a slight shower or two since May 30, and this is the 27th July. In the east of the kingdom the pastures are everywhere parched up, the turnips in many parts unsown, and those sown making no progress; the spring crops now harvesting are the worst known for many years. The water in all the low countries is becoming very scarce and bad: in some districts the stock has to be taken for miles to a watering, or this is brought to them in carts, or barrels, or tubs, as many farmers do not possess water-carts. The expense and trouble no one knows but those who have to resort to such a practice in a hot season like this—the hottest June since 1868, and the driest since 1826. The stock, however, must have water; of food they have scarcely any; and it is surprising how they live, upon the scanty dry herbage they do gather. Of water they drink abundantly; and animals supplied liberally with cake do not shrink to any extent. The reports of the metropolitan and country markets amply testify to the difficulties of the graziers. Many thousands of both cattle and sheep have been sent in half-fatted, simply because the fields were bare of food, and the stock losing instead of progressing. This must tell severely upon the public ere long. It will be worse than the cattle-plague times. Vast numbers of cattle were then sent for slaughter, altogether unfitted for sale as animals of consumption. The like is going on now; and, in addition, sheep in great numbers are forwarded for sale when only “half-meat.” These were an exemption during the cattle-plague trial; but now they must go, or starve upon the land. In reference to store stock, the difficulties are still greater; they cannot be sold at any price. Already the terms of wintering cattle and sheep are ruling very high. For lambs, one shilling per head per week is demanded. The owners of store cattle must, if possible, retain them till the foldyards are ready to receive them; and then I fear they will have to take very unremunerative prices. The depreciation in price now is full twenty per cent.; and animals purchased to graze in the spring, instead of improving and bringing a full profit, have so deteriorated in condition as to entail a loss of equal amount. These are very serious items to our graziers to encounter; but where is it to end? The contingencies are yet to be provided for. There is a long autumn and winter to tide through, and that almost without hay, or straw from any of our spring crops. Hay is already selling at from £6 to £7 10s. per ton; mangolds and turnips *nil*, there are next to none; cake at an exorbitant price; while wheat straw will be tolerably abundant, but it is indifferent food for stock. What, then, is to be done? It is not only a choice of difficulties, but of difficulties of no ordinary kind. From whence are to come the “material” for fattening either cattle or sheep? Store stock we can sustain in a somewhat thriving state, but how are we

to supply the public with fatted animals? This is the hard problem to be solved. My first suggestion is, that every care be taken to secure the present crop in as good condition as possible, in order that the straw may be kept valuable and nutritious. For this purpose let all the corn crops be cut before they are fully ripe. The corn is benefited by it both in quality and yield, and the straw is much more nutritious. Let every thrashing be very carefully done, and all the straw, pulse, and chaff be husbanded as a necessity for food for stock. In its consumption adopt, as seems most desirable, some of the many devices for enhancing its nutritive value. Steam all tainted straw or fodder, and mix with flaxseed tea, or meal, or corn, or bran, or pulped mangolds, and turnips. All other straw and fodder should be cut into chaff, to be damped, and then add a mixture of any of the above-named or other feeding stuffs. It is to many of these and similar devices that we must resort to carry our farm stock through the ensuing winter. So much for the consumption of fodder.

My next suggestion is, that every available piece of arable land on the farm shall be immediately broken up as cleared of its crop, and be sown with turnips or coleseed, or planted with cabbages if plants can be had. It must be remembered that the harvest is an early one, and if every exertion is made to break up land, either by steam, by the digging breast-plough, by the skeleton plough, by

the common plough, by scarifier, or in any other most expeditious way, good may result. We may have tolerable green crops yet. Be that as it may, it is well worth the attempt to get them. My own crop of early peas has already been harvested, thrashed, and sold, and the land broken up, awaiting rains for sowing it with coleseed. I hope to break up my oat land and much of my wheat land for a like purpose. The crops of green food may not be heavy, but "half a loaf is better than no bread." The crop thus produced may be an incongruous one: it may consist of turnips or coleseed, intermingled with oats, barley, or wheat, grown from the shed corn, but it will be food, and this is what I am aiming to procure. I would in these autumn crops avoid sowing other than the quickest growing varieties of turnips. It is preposterous to sow swedes or mangolds. It may in many cases be very desirable to sow rye for spring feed, or tares, or trifolium; if so, by all means do it. If in any field much wheat is shed, and it is possible to pulverize the surface so as to cause its growth, you have a crop at once growing nearly equal to rye. But I need not multiply these simple suggestions. Every farmer must contrive for himself. I only want to impress upon him that in this unusual season he must adopt unusual practices. No landlord will say, "Why do you do this?" but rejoice in the energy of his tenant, be it a deviation or not from lease or regulated cropping.

## THE NEW FARM.

Alack-a-day! that one must needs write, sultry weather or not! It don't matter that one would mightily prefer just to sit down in the now swift, shallow stream of the limpid Wye the day long, listening (if it could be) to sweet music in the distance, and having birds'-eye and bottled perry within reach. It don't matter that the prevailing heat is such—(Bother the comet that will sweep his tail so near to our gasping planet!)—that one could with advantage, as Sidney Smith said, "get out of one's flesh and sit in one's bones for half-an-hour;" but you see, gentle reader, that when one's mind gets on the fret, 'tis like one's wife's talk, or young pop: it must froth over, under risk of an explosion. I am anxious to tell you the result of my experiments: first, as respects the pelargonium seedlings, the history of whose parentage I gave you in a former number. A few have flowered. With what keen anxiety, and almost hourly visits, did one not watch the *début* of that first blossom! It was all I could do to refrain from opening it, *vi et armis*, when the floret had really begun to extricate its petals from the enclosing grasp of the calyx points. I think old Melon did take a surreptitious peep by help of the grape-scissors, for I cannot otherwise account for sundry marks upon the flower when it did appear, that looked far more like bruising caused by human interference than simple veining due to Nature's pencil. How grievously disappointed I was to find that the flower I had produced by dint of so much painful care actually came out identical, to all appearance, with one of the commonest sorts that old women indulge, with a broken tescot, in their cottage window! "Good bye," said I at once, with Celtic perseverance, "to this fan;" but, behold! the next in size and tint is an eminent triumph, although not so rare-looking a sample as one could have wished. And yet the parents of the first (the failure) are superbly tinted flowers, from the stock of about the best grower in England. However, the farmer, if he would succeed in his profession, must reflect over every experiment: and this is what I did conclude, on my river rock and over the

sweetest of pipes—Why you see that's a new proof, young man, if you wanted one, that if you are to succeed as a breeder in the production of fine animals, at all equal to their parentage, you must select for your elements those that are not only symmetrical in form, but whose striking traits and features have become stereotyped in their nature, so that you can safely rely upon "like" being born of "like." More than ever now I appreciate the wisdom of those shrewd, grey-haired men, of whom the auction ring leans forward to take a good look, when the glass runs out, and a small well-shaped heifer is credited to Mr. So-and-so, at bidding of many hundred guineas. Besides her own sweet feminine attributes and graceful style of person, her character went beyond, upon a long, stout stock of most fashionable sires. There will be little doubt of her producing beauties. Finally, then, whether you would breed Shorthorns or South-downs, or any other "fancy stock," you must provide yourself with the *very best* blood, to begin with, in *well-shaped animals* that have a genealogical tree of indisputable value.

It is no good beginning now to start pedigrees. A great and successful breeder, pre-eminent in the prize-list, lately found out this fact, and consequently made a clean sweep of the lot, a grand selection of cows fetching only a few guineas over butcher's price. He was, doubtless, getting aware of what his customers had long since found out, that there was no satisfaction in carrying his new strains on. Himself endowed with rare judgment and taste, he could generally attain success; but when it came to his elements (only just conglomerate and scarcely baked) being put into less experienced hands, the sad fact occurred that no particular development could be relied upon to issue out. It might be this shape, or that shape, or something of all sorts. Hence, he wisely made a clearance, and will, I expect, now be more fortunate in his prices, when his customers find that the seedlings answer to the parent plant.

There is one disagreeable nuisance to which I am sub-

ject. I don't know whether other Shorthorn breeders suffer similarly. It is, that certain gentlemen, exceedingly worthy in all respects but this I doubt not, come and look over one's young bulls. They always select the best, and ask the price. As a matter of course they wince thereat, and reply coldly, "Mine is only a common dairy herd; I cannot afford that." "Ah! then I'll show you what will suit you at one-fourth the figure. Here's a grand young animal, pure bred, but descended from animals whose owners never took the trouble to enter their stock in the 'Herd Book.' There, now, he is as good as any one I have shown you, only excepting his having no recorded pedigree to show." "Oh dear no, not for Joseph at all! The gentleman-buyer wants the best of pedigrees, although his herd is but a dairy lot of cows, and requires this cheap in consideration of that fact. Just look at the logic of it! Is it to be wondered at that one has sometimes not patience to reply to such application. He never calculates (oh dear, no!) that if, in consideration of his cows' poverty of blood, I charitably sell him at about butcher's price the near relative of a twelve hundred-guinea bull, he may the next day pass the animal on at a stinging figure to the enthusiastic cousin or friend who *does* go in for the terribly high-bred kind, because really after all the bull is better than he requires. And if he does make this second bargain, will he remember the first seller? Will he or will he not? Avant! I have no patience to write further of such. Let them learn to reason, before they insult the feelings of those who like myself have launched their bark in trust upon a costly deep.

"Poor little Dandy; how sorry he will be to leave his mamma!" This was the sympathetic remark of our Benjamin, in respect to one of the three terrier puppies which is about to be sent to a distance, as of course one cannot be

keeping such small deer for everlasting; especially as the lamb question makes one sufficiently sore in regard to the children's pets. Benjamin had not reckoned upon the neighbourhood of his brothers and sisters when this tender-hearted reflection gained utterance. Of course a maternal caress reached him; but, alas! the agnomen of Dandy stuck, and hath given an advantage to his mischievous brother.

Talking of mischief—unfortunately, one day, a month since, a lady, who had been with the "Missus" inspecting the poultry at the farm, quite casually cast a glance of inspection over the half-door of a loose box in which a young Butterfly of ten months holds his reign. She had a white floating veil on, the flutter of which so terrified the young animal, that he jumped and knocked himself about the box quite frightfully. He has since given us much trouble. He will not be soothed, and butts viciously at remonstrance of any sort; whereas up to that period he was as gentle as need be. It is so busy at the farm-house now. Such squadrons of ducklings, each officered by a single matron, dabbling about as dirty and as short-clothed as campaigners upon a heap of fresh vetches in apartments damp as I wish the turnip-ground could be. The burnt coach ashes, of which I carted in quite thirsty some fifteen waggon-loads last autumn, and upon which a shoal of pigs was fattened, has sieved out so beautifully fine, and yet so greasily damp, as to put the bailiff into ecstasies. I am not quite sure that he did not actually taste a crumb on the tip of his finger. I trust the swedes may like it. I have not a seed in yet, nor shall I put any in until rain threatens. Mildew always punishes our early sowers. My seed is reposing the meanwhile amidst a bedding of sulphur, as a precaution against the raids of fly.

VIGIL.

## CENTRAL CHAMBER OF AGRICULTURE.

A dinner of the Chamber was held at Leicester in the show week; Mr. Jasper More, M.P., President, in the chair. After the usual complimentary toasts,

Mr. MASFERN proposed "Success to the Chambers of Agriculture throughout the kingdom," coupled with the health of Mr. J. More, M.P., President of the Central Chamber. They had had the opportunity of seeing the rise and progress of the different Chambers throughout the kingdom, and he thought the way in which they had gone on had been a most satisfactory thing to those who had been the promoters of them. He felt it to be one of the most important steps ever taken by the British farmer. They had always been told in their agricultural meetings to keep away from politics, and to a certain extent he agreed with that course; but there were circumstances in which there was a diversity of interests, and there were cases in which that of the occupiers had been forgotten by their legislators. There was an election pending, and they knew the expressions made use of by gentlemen as to the pressure brought to bear by the different Chambers of Agriculture. He hoped they would support men who would act for the benefit of the agricultural community. He did not care whether they returned a Whig, a Tory, or a Radical; but they ought to return such men as would espouse their cause in a way which, he was sorry to say, was not always done by those who professed to be their representatives. Last night, or rather three o'clock that morning, saw the conclusion of a debate which had occupied the House of Commons three times during the present session. The Bill under discussion had been opposed by some of the representatives of the inhabitants of this county; but the result of the division of last night was one which those present must hail with satisfaction. As to their worthy Chairman, he believed that in his place in Parliament he had felt it his duty to study the interests of the men who returned him—the tenant-farmers of the county of

Salop—and such a man they should seek to represent them. (Much applause.)

The CHAIRMAN, in returning thanks, said he was aware he owed the privilege of being chairman of the Central Chamber of Agriculture to the confidence which the tenant farmers of Shropshire showed in returning him. He felt most proud of it, if it enabled him in any way to promote the interests of Chambers of Agriculture. He was glad that they had met for their first dinner in the county-town of their first president, Mr. Pell, and that they had met on a day in which the agricultural interest had been represented in the greatest strength in the House of Commons. He believed on no occasion had the agricultural interest asserted its power by a majority of more than a hundred, as it had done that morning. They must excuse them being tired, for every member present voted five times between one and three that morning in favour of the Metropolitan Cattle Market Bill. It was impossible for them to meet without making some allusion to such a remarkable fact. He knew that some of them might have a prejudice against discussing politics at an agricultural dinner (cries of "No, no.") He was extremely glad to hear them repudiate that. The first division taken was two weeks ago on the adjournment of the debate; and on that occasion the agriculturists reached the extraordinary majority of 148. They had now to consider how to abate the opposition to the bill. All the Liberal party were not their opponents, for last night more Liberal members voted for the bill than the minority that opposed it. They had, all through the divisions, fifty Liberal members supporting the bill. The conduct of one member of the Government might, undoubtedly, have given rise to the opposition, simply from raising the notion that they were not sincere in the conduct of the bill. The notion of the market was originally Mr. Ayrton's. Lord Robert Montagu, only last session, said that the imports to England were so numerous,

that any restrictions would cause an interference with trade which would be intolerable; that the proposal was "a gigantic system of protection." The matter now rested with the Government. In the Chambers of Agriculture they had a great machinery established, which might be used for good purposes. One of these was the obtaining of county financial boards, not as separate bodies, but as including the representation of farmers with the magistrates at quarter-sessions. He had just ended his labours as a member of the committee on the malt-tax; and he thought the best substitute for the tax would be a brewer's licence; but to carry that out, they must tax private brewing; and whether that could be done, deserved their most attentive consideration. With respect to the subject of the night, the House of Lords came to the conclusion, twenty years ago, that every description of property ought justly to be called upon to contribute to that which the Act of 43rd of Elizabeth contemplated should be contributed according to the ability of every inhabitant; and they had to consider the best means of inducing the next Parliament to give effect to the resolution. He had moved for the reprint of the Lords' committee on parochial assessments; it was being reprinted, and he invited their earnest attention to it. He had no great faith in the results of committee, on agricultural subjects. This one had slumbered for twenty years unnoticed. No one carried out the conclusions of the committee which sat on the Game Laws in 1846. On turnpike trusts and on county financial boards, after from ten to twenty years had elapsed since a committee reported on them, the House of Commons merely said, Refer them to a committee again. If they were referred to committees, it would be owing to the action of Chambers of Agriculture if legislative results were gained. He should like to see Mr. Read Under-Secretary for Agriculture. In two counties where there were such departments minute provisions against the cattle plague had existed since the middle of the last century. He rejoiced to see so many foreigners at the show, one of whom, specially sent by the Emperor of France, he had invited to their meeting to-day. They would see that France was 50 years behind England in agriculture, and Italy about 200 years. He had no great confidence in the results of committees, as they were seldom acted on in legislation. In the House of Commons a private member could not carry anything, and their object must therefore be to get the Government to take the matter up. It was worth their while to consider whether they should not try to get a department of Agriculture into the Government, which circumstances had shown would be a great advantage. The chairman said it was clear that personal property had existed so long without being rated, there must be some strong considerations against attempting to rate it. No one said a word against their view, and he was obliged to place himself in the invidious position of asking a question from an opponent's view. He asked if Sir G. Jenkinson's views were carried out, would they consent to tax English incomes for the poor of Ireland and Scotland? ("No, no.") But it was impossible to legislate for England alone in taxation. Then he wished to know if his property consisted of £100,000 in the Funds, how could they be able to rate him? If they tried to do so at Leicester, he should go to London. If they succeeded in rating him there he should go abroad and invest his money in foreign securities. This is merely a difficulty which he suggested to them; but as he did not wish to oppose their views, he would merely ask them to study the evidence given by four very able men before the House of Lords on the subject. By all means let them try every means to gain their end. Let them go in a deputation to the Chancellor of the Exchequer next November, and see what hope he would give them of the Government adopting their views. He believed county rates ought to be reduced, but by a very different method. Some charges, such as the militia, should be entirely taken off the rates; others, such as police and lunatic asylums, should receive an increased grant from Government. But let them rate personal property as well, if they can. Let them remember, however, that they must be weaker in the next Parliament. The majority of electors would be consumers, not producers; and the extinction of the eight small boroughs the other day would make them at least twelve less in a division, such as the one on the Cattle Bill. He begged to conclude with his hearty good wishes for the success of the Leicestershire Chamber. (Applause).

Mr. C. S. READ, M.P., returned thanks as a very young

member of the Council of the Royal Agricultural Society, and he believed the only one present on that occasion, for the compliment paid to that body. This meeting appeared to him to be, from what little he had seen of it, one of the best which the Society had ever held. They had been furnished with a magnificent site, and from the long lines of stock which he had had the pleasure of glancing through, it appeared to him that their cattle had come out of the affliction which had overtaken them, improved and purified, rather than degenerated. It was the custom in these days to look very gloomily upon the finances of the Royal Society; but when they considered that they had gone through the visitation of the cattle plague, and that in 1866 there was no show, and that last year there was only half a show, and when they remembered that they had reduced their capital stock by £3000, it was not to be wondered at that people should take such a gloomy view of its prospects. On the other hand, the Royal Society was not supported by the tenant farmers as it ought to be, and he thought there was very good reason why such support was not given (cheers). He meant to say that the Council was a pocket borough (Hear, hear). The tenant-farmers who were on the Council were the best and ablest of their class, and the great noblemen and large landed proprietors who take a prominent part in agriculture were very properly represented, but he contended that there was a set of gentlemen on that Council who did all they could, and who spoke, whenever they could, against agriculturists, and always voted against them (Shame!). In speaking in the House of Commons in favour of the Cattle Market Bill, or in favour of Malt-tax Repeal, it was very damaging to the little influence he (Mr. Read) had, to have gentlemen of the Council of the Royal Agricultural Society, getting up and making speeches and voting directly against the agricultural interest. They could scarcely believe that the gentleman who drew up the report the other day against the report of the majority of the Malt-tax Committee—a report which said that the malt-tax was no sort of burden to the British farmer, and who drew up the report of the Trade in Animals Committee, which said that there ought to be the same restriction put upon English cattle as was placed upon foreign cattle—was a leading member of the Council of the Royal Agricultural Society (Shame)! Leaving the subject of the Society, he would now allude to one or two things which had been adverted to by the Chairman. He had told them that he did not believe in the value of committees. He did not think that there was ever in these days legislation without either a committee or a commission preceding that legislation. He would ask them to remember particularly the Cattle Plague Commission, of which he was a member. They recommended the stamping out the disease, and, though that was an unpopular measure at the time, they knew how successful it had been. They also reported in favour of separate markets for foreign cattle, and that was the bill upon which they divided so successfully last night. Therefore, he thought, so far as commissions were concerned, he had proved that they were of some use. With regard to committees, they had recently had a committee on financial boards, and they had recommended that all Boards of Guardians should send representative ratepayers to take their seat at the quarter sessions with the magistrates, and assist them in all the financial business of the county (Hear, hear). They also recommended that in all committees, such as police and finance committees, half of the members should be magistrates and half elected ratepayers. If those recommendations were carried out, what more could they wish for? what more could they desire? They did not want to set up county financial boards with separate and distinct jurisdiction, but they wanted the voice of ratepayers heard in the court of quarter sessions, and then he thought all would go smooth and pleasant enough (cheers). As to the Chairman's remarks upon the Cattle Bill, it was true that they were backed up by 50 independent Liberals; but unfortunately for them, with but one exception (Mr. Lowe), the whole Opposition went continually into the lobby against the agricultural interest. For 35 days, when in committee, they were taunted and badgered; it was said that they wished to deprive the poor of their meat, and that they wanted nothing but protection. What they wanted was thorough free-trade, but it must be a rational free-trade, not free-trade in foreign diseases, which were sure to produce first a pestilence and then a famine in meat (cheers).



The CHAIRMAN said Mr. Reed's remarks were likely to convey a wrong impression as to what he said about county financial boards. He had taken a great interest in this question, and he had always thought it better to have farmers represented at the quarter sessions, in preference to having distinct financial boards.

The meeting then proceeded to the discussion of the subject of the evening, "The pressure of local taxation on real property."

Sir G. JENKINSON said, he had been requested to propose the first resolution—"That this meeting declares that the taxation now levied by local rates bears unfairly upon the income arising from real property, and urges that income arising from other sources ought to bear an equitable share of the poor law charges, and other local burdens." He had had the honour of reading an address on the subject to the Central Farmers' Club. He believed if the matter were taken up by all the Chambers of Agriculture, they would be able to bring in a measure, whatever Government succeeded to office next year, and to compel attention to a real grievance and a real injustice.

Mr. PELL moved "That a committee of the House of Lords, in the year 1850, having decided that the relief of the poor is a national object, towards which every description of property ought to contribute, this meeting recommends the Chambers of Agriculture to support by every means in their power legislation for carrying the principle into effect." In attempting to advance the intentions of that committee, it was necessary he should call attention to the evidence that was given before it, as well as to a portion of the report founded upon that, to which the Central Chamber of Agriculture had called attention. He was bound to tell them that the committee of the House of Lords that sat 20 years ago, directed its attention to other points, besides the one which had been selected for him to bring before the meeting. The committee directed its attention first mainly to the way in which the tithe was assessed upon every person in England. Among the witnesses examined there were two important ones, one he was very sorry to say had passed from among them now, but had left a name redolent of good sense and surpassing ability behind him, the late Sir G. Cornwall Lewis, and another was still living and aiding the agricultural interest by his exertions, the present Lord Malmesbury. The report stated that as a general principle it was impolitic, if not unjust, to levy upon one class of the community all those rates which were to be expended for the benefit of all classes of society, that certain property should be exempt from those rates, and that the rates should attach solely to real property. That this thing had been so for the last 50 years was no reason why it should continue for 50 years more. Upon what did the security of personal property depend? It depended upon the happy feeling that existed between the poor and the rich in this country. How was that maintained and substantiated? By the system peculiar to England, the system of the poor law. If he was right in saying the poor laws were essential in giving the full value to personal property in England, he contended that personal property should bear its share in supporting the poor rate. Sir G. C. Lewis considered that it would be fair to levy a tax upon those persons who now escaped all contributions to the local rates; for example, fundholders, mortgagees, and persons whose income arose from the profits of trade. Could they have any better evidence of that eminent man? He thought he understood Sir G. Jenkinson to say the statute of Elizabeth levied the poor rate upon the real property of the land (Sir G. Jenkinson: I said it imposed it upon real property because there was no other to impose it upon). The principle of the statute was that it should be levied upon real property, and also upon every person in the parish according to his ability; and acting upon that principle the Scotch up to 1845 attempted to levy the rate, and, in fact, in certain parishes in Scotland, still continued to do so. It had been laid down by the Judges that property to be rated must be visible—must exist in the parish; and persons had removed property to other parishes to escape the rating. If a man occupied a house at £100 a-year, and another a farm at the same rent, and another a warehouse at a similar amount, did they pretend that if they laid a shilling rate upon each of these men that they were rating them according to their ability? There was no doubt but personal property should be rated as well as real property, and it would be the duty of the Chambers of Agriculture to take care that this matter was pressed upon the attention of the legislature.

Mr. DUCKHAM moved, "That this meeting calls upon the members of all Chambers of Agriculture to support by every means in their power those candidates who declare themselves in favour of a revision of local taxation." He contended that the present system of local taxation inflicted injustice upon one part of the community for the benefit of the other, and that the Chambers of Agriculture would not be carrying out the objects of their promoters if they did not act in accordance with the resolution which he proposed.

Mr. MAY responded to all that Mr. Duckham had said with regard to Chambers of Agriculture, and believed with that gentlemen, that they were to be made of real service to the country. It had been mooted to him by a gentleman who represented a county, that their association was one-sided. If such was the case, then all he had to say was, that he himself was not so. His only wish was to do that which was the best for all men. He trusted that their Chambers would avoid any impression of what might be termed extreme party feeling. Agriculturists had a great work to perform, and he believed they were in the van of doing it. They were very young, and he did not think they had, as yet, put their forces in the right form. It struck him that the present was the time for them to put their forces in order, not for the mere sake of party politics, which would be detrimental to their success, but simply that they should unite, in order that they might somehow or other teach the country that they, as farmers, were, after all, not so far behind other people as might be imagined. The question was, whether farmers as a class should be taxed, and other members of the community set free. He coincided with the gentleman who had spoken before him that such a thing ought not to be, and he thought it practicable that it should be changed. Why should a penny in the pound be levied for the release of the Abyssinian captives, whilst the captives in our prisons and gaols were paid for from another source? Why should not the same thing be paid for in one way as in another? Why should they build ships of war, or any other expensive armament of the Government, paying a penny in the pound, and not pay in the same way for lunatic asylums, and other parochial establishments? Why should they pay their pennies in the pound to teach people how to kill each other, and not pay to teach them how to live amicably together? His rates had increased something about one-third upon his occupation; they used to be 2s. 6d. per acre, now they were 4s. 1d. Still, he should not grumble if the burdens were borne generally—England expected that every man would do his duty. He said, let him do it, in paying as well as in acting. He most sincerely wished that Mr. Hallett, who was a great man in producing pure seed, would take Mr. Reed, and produce more seed like him—(applause)—and that Mr. Mechi, who was so well-known in connection with thin-seeding, would thin-seed Mr. Reed over the whole breadth of the land, and so produce to the farmers a good crop of admirable men such as he was (Cheers).

Mr. ALGERNON CLARKE (the Secretary of the Chamber) said the resolution called upon them to exert some political action in the next election with a view to ensure the return to Parliament of members who would be likely to carry out the objects of the Chamber. He was quite aware that this was the first time that the Central Chamber had officially taken cognizance of any strictly political action beyond deputations, petitions, and so on; but it must be remembered that the Chambers were not merely farmers' clubs, afraid to take any particular action, neither were they about to form themselves into trades' unions; but at the same time, while there might be an element of danger in the resolution which the meeting was asked to carry out, still there was great weakness in being afraid to pass such a one at all. The resolution, as read by Mr. Duckman, called upon them to support in the next election such candidates as declared themselves in favour of what they might call Chamber questions. He was aware there were two words in that resolution which were originally intended to be put into it, and they were "wherever expedient." It might be that an excellent man might come forward, such a one as they would like to elect, but still he might be dead against the reform of local taxation. Another man, in respect to whom they might use every endeavour to keep out of Parliament, might wish to act strictly in accordance with their view of revising local taxation, and therefore it was thought advisable to say "wherever expedient." What was the use of going up to Parliament and asking their representa-

tives to do something for them, and at the same time being afraid to speak to the candidate before he got there. His object in addressing the company was to ascertain what course the Central Chamber in particular, and provincial Chambers also, ought to take in the coming elections. Were they to have a committee sitting in London to act whenever it was advisable to do so, and so as to carry out the views of the members? or were they to act as the Chambers of Commerce did, never interfere in the elections, and by that means offend neither one party or another?

Mr. C. H. FRENCH rose amidst some applause mingled with laughter. (After considerable interruption, the chairman said it was possible that the interruptions came from gentlemen who were not strictly sober. He should advise them to take a stroll, and cool themselves.) He said, as regarded the resolution then before the meeting, he must say that he cordially agreed with it, but he confessed there were, at the same time, a considerable number of practical difficulties connected with it that required to be well considered before any measure for carrying out such a principle was passed into law. He knew from his own experience the great injustice that was inflicted under the present system, and the great practical difficulties that arose from time to time upon the subject of the income-tax. They knew perfectly well that if they only took up the *Times* newspaper they would be sure to see a return of conscience money sent by individuals who had escaped payment of the tax. He thought the principle suggested by Sir George Jenkinson was a very sound one, and could be carried out precisely in the way that half of the expense of keeping up the police force was refunded by the Government to the different districts that supported it. Everyone, he believed, who had examined the question, must come to the conclusion that there was a great amount of unfairness and injustice as regarded the income-tax. He happened to be a commissioner, and he heard it said that the frauds which were committed in some particular neighbourhoods were almost beyond conception.

Mr. GREEN, M.P., could not see how a parish could with justice be called upon to support a national militia, or when a man was drowned and thrown ashore, the parish, wherever it happened to be, should be mulcted with the expense of the coroner's jury. With regard to putting the expense on to the income-tax, that was a question on which he should not like to give an opinion, but certainly they had heard enough to make them think on the subject. He hoped the day had gone by when there would be any class feeling between town and country, because the interests of both were beginning to be so united that they must go hand-in-hand together; and that which was conceived to be justice to both of them would have to be done.

Mr. TURNER said that the subject they had under discussion was undoubtedly the question of the day. He should like to have it written in large letters in every public building, where it could be seen, that instead of paying on the rental of 1s. in the pound, he had to pay on three. There were £300,000,000 paid to the property-tax, but only £100,000,000 paid to the poor-rate. Everybody knew that that was a fact. It was simply a question of the rule of three, and they should think of it night and morning.

The Rev. E. SMYTHIES thought that something should be done so that during the next Session of Parliament the matter might be taken up as it ought to be. There was only one opinion and one voice as to the injustice of local taxation. Surely in the next election they would have justice done to them. He agreed with Sir George Jenkinson that they should have an income-tax; then instead of having to pay 2s. 6d. in the pound, as at present, their payments might be reduced to as low as 2d.

Mr. NEILD, of Worsley, Manchester, considered Mr. Duckham's resolution of vast importance. He besought them not to let anything go forward which had in it anything like a political bias. He believed there was no question of modern legislation which claimed more consideration or was calculated to do greater justice to the agricultural interests than the revision of local taxation; and in whatever shape it might be presented, there would still be left the broad principle that the agricultural interest, so far as local taxation was concerned, must prove the revision of Parliament.

Mr. RANDALL, of Market Rasen, held that the national exchequer ought to meet all liabilities connected with charges of poor-rates by an imperial taxation founded on an impar-

tial assessment on the entire income of the country. At present they were paying in the dark; for instance, one-third of the poor-rate was devoted to other purposes than the relief of the poor. The local taxation was levied on real property alone, whereas real property only represented one-third of the annual income of the country. The experiment of the blind leading the blind had been carried to a considerable extent. However, there was a great hope that the eyes of the leaders would be opened. It was not long since that these Chambers of Agriculture were formed, but they had already gained a standing in the country, which they would honourably maintain (Hear). They were listened to in the House of Commons, and the proceedings that day had been characterized by an amount of mind and well directed zeal, which could not fail to make its mark.

After speeches from several other gentlemen the resolutions were put *seriatim*, and carried unanimously.

Mr. READ in moving a vote of thanks to the Chairman was most anxious that a fair distinction should be drawn between the politics of agriculture and the politics of party (loud cheers). This was a distinction beginning to be felt; and he could not help thinking that the towns would soon begin to regard this question of land taxation as affecting them also. He was glad to see Mr. Goschen, one of the members for the City of London, taking up similar views the other night in the House of Commons. In dealing with this question, therefore, they must be careful to keep its general bearings always in view. He was, on that account, anxious to see all exemptions abolished. Several kinds of real property—woods, mines, game, &c.—were now exempt from local rates, and those exemptions should be got rid of. No doubt it was a great question, but a national rate for the relief of the poor was beginning to be thought of. At any rate all establishment charges, the cost of lunatic asylums, the militia and such other fixed charges ought to be defrayed out of the consolidated fund; but the casual poor, respecting which the expenditure may be lavish or parsimonious as guardians pleased, were burdens on real property which ought to be supported by the district. The land even then would pay its fair proportion of taxation levied by the State for objects in which it had no special interest. He asked, then, but for a simple measure of justice. It is not for us (said the hon. member) that gunboats rot in Chinese seas; it is not for us that consuls are sent to semi-barbarous powers, who land us in an Abyssinian war and extra income-tax; it is not exclusively for us that large additional grants are made year by year for education; it is not for us that a quarter of a million a year is spent by the Government on art and science (cheers). I say, therefore, that we want nothing but justice, and though we may wait long for it, we will be satisfied with nothing less (loud cheers.)

**THE DEVONSHIRE CHAMBER OF AGRICULTURE.**—The quarterly meeting of this Chamber took place at Exeter; Mr. Elias Ward, of Hangridge—in the absence of the president, Earl Fortescue—in the chair. The meeting took into consideration the propriety of establishing a standard weight for the sale of grain. Mr. G. Radmore, of Thorverton, brought forward a resolution recommending the adoption of the following scale: 1st, Bushel of wheat 80lbs.; 2nd, Bushel of barley 50lbs.; 3rd, Bushel of Oats 38lbs. He referred to the anomalies in the present system. At Liverpool the weight of a bushel of wheat was 70lbs.; at Barnstaple, 65lbs.; at Exeter, 62lbs. Mr. Holley, of Okehampton, seconded the resolution. Mr. Norrish recommended that the returns should be made of all grain sold in the market, and moved an amendment embodying his views, but as there was no seconder it fell to the ground. Mr. Radmore's resolution was then carried, with only one dissentient. The Chairman introduced for discussion the subject of the extent of highway districts and highway rates. He moved "That highway districts should be coterminous with Poor-law Unions." Mr. Holley showed that with regard to some matters there should be a national instead of a county rate. The resolution was carried by a majority of 19 against 4. The Chairman then proposed "That the expenses of maintaining the parish roads should become chargeable to the common fund of each district." Mr. Norrish seconded the

motion. Mr. Risdon, of Walton, thought that the principle propounded was good, and that the resolution expressed what would eventually come to pass. The Rev. W. H. Karalake suggested the formation of a small committee to assist Mr. Ward in ascertaining how the proposed alteration, if carried out, would affect the parishes. He much doubted whether the

county area would not be the best with reference to the maintenance of the highways. The resolution was carried by a majority of 10 against 2. Mr. Risdon gave notice of a motion, that as the general election is approaching the election be strongly recommended to press on the candidates for election the great necessity of more uniform and equitable rates.

## AGRICULTURAL STATISTICS.

On Monday, July 20, at a general meeting of the Thirak Chamber of Agriculture, Mr. CRAIGIE, of Brawith, the Chairman, said they had met together to consider the question of agricultural returns—whether good or bad was to be derived from them—whether should give them their support, or raise their voice against the adoption of them. The subject had now been under discussion a considerable time—in Scotland more so than in England—and in the former country agricultural returns had been tried with great success until lately. The primary cause of these returns being instituted was through the cattle plague. The Government were induced, in March, 1868, to issue the cattle census to ascertain what cattle the country contained, and, in June they imagined the idea of ascertaining the wheat crops. The returns were very imperfect at first, a large section of the community having objected on principle to them; but gradually they have improved. The tax-gatherer is mixed up with them, and there is a great dislike to that word—there was rather a dread of Government, and the returns being sent to the tax-gatherer. He thought they ought to discuss the subject as fully as they could, and ask themselves whether they should give the information, and, if they did so, whether that information would be for the benefit of the country. His opinion was that it was a capital thing, and would be found of very great use to farmers, if properly compiled and prepared; but they had not yet the statistics to enable them to see of what real benefit they were, for some of them rather tended to mislead than to form a proper data. They would all have noticed the great discrepancies from year to year, and by them they could not ascertain whether they had advanced or retired. He thought some arrangement ought to be made in classifying these returns, whereby the man in the south might see what his brethren in the north were farming, and he considered that some arrangement of that kind would be the means of promoting a general efficiency. The present returns do not contain all the occupiers, for he knew himself many in the North Riding who had not sent in their returns. In 1861, 7,099 were returned as farmers and occupiers, and, in 1867, this number had increased to 12,631. Now it was impossible that in six years the number would nearly have doubled itself. He suggested also that if the size of the holdings each man held was returned, it would be advantageous. Before they discussed the general principles of that subject, they should take it on its merits, and that is what they ought to discuss first. If any person present would move a resolution, he had another which he would afterwards move as to details, and which he thought would be of advantage to them. He referred to the agricultural statistics prepared in Belgium, Holland, and France, and the satisfaction that was derived therefrom, and said he had no doubt that, on principle, agricultural statistics would be a great benefit to all of them, and not be detrimental to them. A man's means were not disclosed to the public. What would a general do in battle, if he was not acquainted with the supplies to be obtained? and it was the same with the country at large, who ought to know what supplies they had at hand; for if the aid derived from foreign countries was cut off, they would have no idea of the resources of this country. He briefly referred to the question of estimating the total crops, which would, in his opinion, be found very difficult. They knew the area, but he considered it would be injurious to couple the estimate with the area. It was very necessary they should have agricultural returns, and those returns should be as complete as possible (applause).

Mr. RINGROSE (Osgodby) inquired of the Chairman whether, in the Scottish statistics, there was not some estimate of the counties.

The CHAIRMAN replied that it was attempted in three counties.

Mr. RINGROSE agreed with the Chairman that a great deal of objection had been taken to the statistics being associated with the revenue offices, as it then appeared as having a connexion with taxation. He considered that if the facts were collected by the Board of Guardians, it would be less objectionable to the public at large. If the statistics were collected by them, they might form an estimate in committee. Some farmers he knew of would be afraid to give a correct return for fear of their landlords coming upon them for a higher rent; others would make their crops greater than they really were, merely from a spirit of bombast. He thought that on looking over the area they might themselves make a pretty good estimate of the crop. He concluded by moving the following resolution: "That this chamber records its opinion of the value of agricultural statistics, and suggests that that there should be a further development of the system now in force, in order that greater accuracy may be obtained."

Mr. APPELYARD (Angram) thought if the farmers discussed the question as they were doing that day, there would be no more objection to agricultural statistics. If they ask their neighbours why they do not send in their returns, the answer given is that there is no advantage to them in doing so—they did not know what they were for. If every person properly understood the object of the Board of Trade in making out these returns, he was sure there would be no more objection to them. A copy is sent to the farmer, six or eight weeks before harvest, to fill up: he is to give his estimate. If they estimate the quantity of quarters per acre they must be very far wrong; and if the farmers were called upon to do that, there would be a strong objection to it. This, however, is not what he is required to do. He is only asked to give an estimate of his entire crop. If farmers were called upon to give an estimate of quarters per acre, the landlords would see it, and, perhaps, raise the rents. He could not see any objection to the present system, and he had great pleasure in seconding Mr. Ringrose's proposition.

The CHAIRMAN next referred to a discussion which had been raised in the House of Commons, on the advantage of having a separate department for agriculture, having it represented in the Cabinet, and doing away with the returns to the Board of Trade. Perhaps they would not exactly have a minister of agriculture, but some person holding a similar position—a secretary for managing the agricultural affairs of this kingdom. There was no doubt of the failure of agricultural statistics as commanding respect from the farmers, and this would be best removed by having the statistics collected entirely independent of all Government offices. He called their attention to the trouble in gaining information during the cattle-plague; they were referred from one person to another, and never knew from whom they were getting proper information, or from whom the restrictions came. What they wanted was an executive, and under that organization the Chambers of Agriculture would be most useful to them. They would not then be responsible to Parliament, but would be independent of Government altogether. Agriculture formed the great back-bone of the country, and although a large portion of the community could not be occupied in commerce, yet they could in agriculture. A proper system of agriculture was, he thought, a thing that could not be over-estimated, and their object was to make the whole of the agriculture of the kingdom to radiate from one centre. Whatever party be in power, it should be their object to look after the interest of agriculture. He thought that since agricultural statistics had been introduced they had certainly conduced to the benefit of the farmer, and would still more so if collected as they recommended. He proposed "That this chamber considers that

agricultural statistics would be more efficiently collected were they compulsorily done by a national department of agriculture, and in its opinion it would be for the good of the country if such a department was instituted." He next referred to the subject as taken up in the House of Commons by Mr. Acland, and said that more than £70,000 a-year was spent over the services rendered to agriculture, which was very badly represented. What he suggested was that there be a commissioner of agriculture appointed, who would be responsible to Government, and by that there would be not only a considerable saving effected, but the work would be carried out much more satisfactorily than at present.

Mr. BARLEY (Ongodby) seconded the motion, and then proposed "That the best mode of distributing the form of returns would be through the medium of the overseers of the poor for

each township, and such returns to be sent by each occupier under seal to the department of agriculture."

Mr. BARNETT (Birdforth) seconded the motion.

Mr. RINGROSE thought statistics no use unless they were made up soon after sent in, and he considered they should be placed in the hands of a local man, and made up by him.

Several members objected to this, on the ground that their affairs would then become known in the locality.

Mr. WYSE (secretary) suggested that this question stand over until another meeting, and moved "That no mode of collecting these returns be approved of by this chamber that does not ensure perfect secrecy so far as it relates to each particular occupier."

Mr. Barley agreed to withdraw his motion; and that proposed by Mr. West was carried.

## MALT-TAX REPORT.

[We gave the substance of the following report which has just been issued.]

The Select Committee appointed to inquire into the operation of the Malt Tax have considered the matters to them referred, and have agreed to the following Report:

1. Your Committee opened the inquiry by taking evidence from the Board of Inland Revenue, and the chairman of the Board (Mr. Stephenson) put in a statement of the different rates of duty on malt from the year 1897 (when it was first imposed) to the present time, as follows: "In 1897, on its first imposition, it was 6d. a bushel; in 1713, when it was extended to Scotland, it was 6d.; and in 1726, in Scotland, it was reduced to 3d. Then, in England, in 1780, it was raised to 9d. a bushel; in 1780, it was raised to 1s. 4d. a bushel, and to 8d. a bushel in Scotland. Then, in 1785, the duty was imposed in Ireland, at 7d. a bushel; that was raised in 1795 to 1s. 3d. Then in 1802 it was respectively 2s. 6d. in England, 1s. 8d. in Scotland, and 1s. 9d. in Ireland. In 1804, which was a year of war tax, it was raised to 4s. 5d. in England, 3s. 9d. in Scotland, and 2s. 3d. in Ireland. In 1813 it was raised to 3s. 3d. in Ireland; and in 1815 it was raised to 4s. 5d. in Ireland. Then in 1816 the duty was reduced to what it had been prior to 1804—viz., 2s. 5d. in England, and 1s. 8d. in Scotland, but it was reduced to 2s. 4d. in Ireland. In 1819 it was raised to 3s. 7d. in England and Scotland, and 3s. 6d. in Ireland. Then in 1822 the duty was fixed at 2s. 7d. uniformly, at which it stands at the present time, with the exception of 5 per cent., which was added in 1840 to the excise duties generally, making the actual impost 2s. 8d. For a short time, from 1854 to 1856, there was a duty of 4s. during the Crimean war, and after that it reverted to 2s. 8d., as it stands now." Following this statement, with regard to the amount of tax, Mr. Stephenson stated as a remarkable fact, that the amount of malt consumed had remained almost stationary for 100 years prior to 1830, although the population had largely increased; that during this period the consumption was 25,000,000 bushels a year, and that on the repeal of the beer duty in 1830 the consumption rapidly increased, until in 1866 it reached 45,000,000 bush. for England only. In 1866 the amount of malt on which duty was paid in the United Kingdom was upwards of 52,000,000 bushels. These statements lead your committee to the conclusion that a reduction in the rate of duty would lead to a large increase in the consumption of malt.

2. Your Committee proceeded to examine several agriculturists of great practical experience, taken respectively from all parts of the country. These witnesses appeared to your Committee to be generally of opinion that the effect of the malt-tax is to interfere with the due rotation of crops, by causing wheat to be sown where barley could otherwise be sown; that it causes inferior barley to be neglected for malting purposes, though it is well known that such barley would make good malt; that it causes the labouring classes to consume an unwholesome kind of beer; that it prevents the farmers giving their labourers wholesome home-brewed beer; that it prevents to a great extent the agricultural labourers brewing beer in their own cottages; that it prevents the farmers making malt on their own premises, as used to be the

custom, it having been given in evidence that in the counties of Essex and Cambridge few of the farm-houses were formerly without malt-houses attached to them. It has been proved to your Committee that malt is valuable for feeding purposes, and that the Excise restrictions, in preventing barley being sprouted for the feeding of horses and cattle, are injurious to the agriculturist.

3. Your Committee next examined maltsters from the counties of Suffolk, Norfolk, Hertford, Lincoln, Devon, and York; from whom your Committee gather that the number of maltsters has sensibly decreased in the last few years, whilst the quantity of malt manufactured has increased; that although some of the witnesses were favourable to a repeal of the tax, they admitted that the trade, as a whole, were opposed to the repeal, on the ground that it would lead to an increase in the number of maltsters, and to the practice of malting by farmers; that the tax compels the maltster to use more capital in his trade, by at least 50 per cent., than would be otherwise required. The Committee feel bound to observe that it is given in evidence that the revenue officers offer every facility to the maltsters in the conducting of their business.

4. Your Committee examined two eminent corn-factors, who are large buyers of home-grown barley and large importers of foreign barley. Their evidence goes far to show that, although in certain localities abroad first-class barley can be grown, yet that as a rule the best English barley would always command a higher price than foreign barley for malting purposes.

5. Your Committee also examined three gentlemen eminent as public brewers, who generally state that the consumption of beer has increased very much of late years; that more capital is required with the tax than would be required without it; and that public-house beer is not adulterated to their knowledge. Mr. Allsopp asserted confidently that the public brewer can and does deliver beer cheaper to the consumer than he can brew it for himself. Two country brewers were also examined, the first of whom objected to the repeal of the malt-tax, as he could see no good in it, whilst the other was of opinion that it would confer great benefit on the public generally, but especially on the labouring classes.

6. Your Committee also examined Mr. Gurdon, of Brantham Court, Suffolk, who has a plan for commuting the malt duty by levying a duty on the malthouse, according to measurement; a plan which certainly appears to have some merit, but upon which your Committee are not prepared to express any further opinion, inasmuch as it is novel, and requires to be considered by the officers of excise.

7. Your Committee next examined, on behalf of the consumer, a manufacturer employing large numbers of workpeople on the borders of Lancashire and Yorkshire, and a very intelligent labouring man from Playford, Suffolk. The latter, Elias Amos, stated that he was a farm labourer at Playford, and that he brews in his cottage three times a year; that he could brew oftener, and that he and his family should use beer instead of tea if malt were cheaper, as they can do more work on it; that

he can do more work on the beer he brews than on public-house beer, which is not wholesome. He says all labourers in his country would brew if they could afford to do so. The former witness, Mr. Joshua Fielden, of Todmorden, gives important evidence as to the extent to which cottage brewing is carried on at the present time. He caused an examination to be made, from house to house, in seven townships situate in the parishes of Halifax, Huddersfield, Calverly and Rochdale. The total number of families visited was 9,822, and the result is that 76 per cent. of these families brew at home, 8 per cent. would brew but cannot afford to do so, 6 per cent. buy their beer, 10 per cent. do not drink beer.

8. The witness accounts for the prevalence of this habit, by the fact that the wages received by a family in the manufacturing districts are so much more than those received by a family in the agricultural districts. He also states, from his own experience, that those who practise it are the least given to frequent public-houses, and are the most sober, steady, and industrious of the population. This witness contends that the malt tax being laid on the raw material increases in pressure at every stage of the manufacture or change of hand through which it passes, and he arrives at the following results: that, taking the price of barley at 31s. a quarter, the tax, when paid by the malster, is 70 per cent.; that the person who buys malt and brews beer from it pays a tax of 100 per cent.; and that the person who buys beer by retail in a public-house pays a tax of 140 per cent. Your Committee are of opinion that the principle on which this calculation is based is correct, and that the consumer of beer pays a very much heavier tax than goes into the Exchequer.

9. Two large distillers were examined by your Committee, of whom Mr. Menzies was anxious that the distillers should

be allowed to make beer from some portion of his wort, and that the duty on such beer should be charged in the same manner as the drawback is now allowed on exported beer. This witness, with all the large Scotch distillers, presented a memorial to Mr. Gladstone to this effect, in 1866. But your Committee must add, that the second witness dissented from this proposition. He also thinks that a reduction of the duty on strong wines would interfere with the spirit duty.

10. Your Committee concluded this part of their labours by examining Sir Charles Presaly (formerly Chairman of the Board of Inland Revenue), and Mr. C. B. Forsey (Surveying General Examiner of Excise). The first of these witnesses stated distinctly that there would be no difficulty in raising a tax from private brewers; and the second could point out no insurmountable difficulty in substituting a brewer's licence instead of the malt tax.

11. Your Committee consider that the result of the evidence taken by them is, that the malt tax prevents the farmer from cultivating his land to the greatest advantage; that it obstructs him in the use of a valuable article of food for cattle; that, by making it necessary to employ a large additional amount of capital in the important trade of malting and brewing, it has created and tends to foster two large monopolies; and that, by materially increasing the price of beer, it encourages adulteration, and prevents to a great extent the habit of brewing amongst the labouring people.

12. Your Committee, carefully reviewing the whole of the evidence before them, are of opinion that the malt tax might be repealed, provided some means for raising the same amount of revenue, if required, be substituted either in the shape of a brewer's licence or some other form.

July 13, 1868.

## THE CATTLE PLAGUE ACT.

(From the Supplement of the *London Gazette* of Friday, July 24—Saturday, July 25).

From and immediately after the 26th day of July, 1868, Article 26 of the Consolidated Cattle Plague Order of August, 1867, shall, with respect to the metropolis, be read and have effect as if the words "ten days" were therein substituted for the words "six days."

The schedule to the Metropolitan Cattle Plague Order of August, 1867, shall be read and have effect as if the words "eleven days" were therein substituted for the words "seven days;" and the forms of Metropolitan Cattle-market passes shall be altered accordingly.

The word "animal" means exclusively an animal comprised in the definition of cattle; and the word "calf" means exclusively a calf not more than 14 days old; and, subject thereto, words in this order have the same meaning as in the Metropolitan Cattle Plague Order of August, 1867.

Notwithstanding anything in the Metropolitan Cattle Plague Order of August, 1867, cattle may be moved alive out of the metropolis, in accordance with the provisions of this order.

Where any person being the owner of any animal within the metropolis which, except in the case of a calf, has been in his possession not less than eight weeks, or which, in the case of a calf, is born from a cow which has been in his possession not less than 28 days, is desirous of moving such animal alive out of the metropolis, he may give notice of such his desire to the local authority by writing, stating:

The fact of the requisite possession as aforesaid;

The name and residence of the owner of the animal;

The name of the person to whom, and the place to which the animal is to be sent;

A description of the animal, stating its sex, breed, age, distinctive marks, and other particulars sufficient for identification.

On receipt of any such notice the local authority shall, unless there appears to them good reason to the contrary, and on being satisfied of the fact of possession for the time requisite under this Order, proceed, as soon as may be, to cause an inspector appointed by them under the Contagious Diseases

(Animals) Acts to visit the cowshed or place from which the animal is desired to be moved:—

In all cases within three days after the receipt by the local authority of the owner's notice; and again,

In the case of any animal other than a calf, at the expiration of 28 days from the day of the first visit (both days inclusive); but

In the case of a calf, at the expiration of seven days from the day of the first visit (both days inclusive):

And to report to the local authority on the state of health of the cattle in the cowshed or place aforesaid.

If in the case of any animal, the inspector, on each such visit, is satisfied and reports that it and all other cattle in the cowshed or place aforesaid are entirely free from contagious or infectious disease, and that it has not, since his first visit, been in contact with any cattle other than those in the cowshed or place aforesaid, then the animal may be moved alive out of the metropolis at such time within three days after the second visit of the inspector.

Cattle brought to the metropolis by the London and North-Western Railway may be moved alive within and out of the metropolis by the London and North-Western Railway to Willesden station, thence by the West-London Railway to the junctions with the London, Chatham, and Dover Railway, and with the London, Brighton, and South-Coast Railway, at or near Long Hedge, and thence by either of the last-mentioned railways out of the metropolis.

Cattle, the produce of Spain or Portugal, or of Normandy or Brittany, may be landed at any port in Great Britain, along the coast from the North Foreland, westwards to the Land's end, and thence northwards to the Mull of Cantyre, at places approved by the Commissioners of Her Majesty's Customs.

Until cattle landed from a vessel under this Order have been examined by an inspector appointed or approved by the Commissioners of Her Majesty's Customs, they shall not be moved from the place of landing, or be allowed to come in contact with any other cattle.

## LEICESTERSHIRE FARMING.

"A plough in a field arable," says Cowley, "is a most noble and excellent coat of arms." It was a home-truth quaintly told, and one not to be lightly gainsaid. Still the decision of the twenty Midland farmers, who met to celebrate the victory of Salamanca, and then sent off the best score of bullocks in their pastures to "Sir Arthur," touches the real key-note of Leicestershire farming. Drayton, it is true, could think of no other title for the county than "Bean Belly," when he strung together in his "Polyolbion," "the blazons of the shires;" but the lapse of two centuries and a-half has placed bullocks before beans, and wethers before wheat. Its "rich and marly plain" hath, according to Burton, "the proportion of a Hart, broad at the top and narrow at the bottom, which name it truly beareth, for that it lieth almost in the hart and center of the whole continent of the kingdom." Except where Bardon Hill rises more than eight hundred feet, above

"the craggy bound,  
Ragged and high, of Charnwood Forest ground,"

where you meet, as Herbert\* did in harvest-time, those silent workers in cowl and gaberdine, under the shadow of the cross upon the rock, the county is pretty generally a succession of gently-rising hills, of which a south-eastern range separates the basin of the Soar from the Welland. It contains 816 square miles, or about 535,346 statute acres †; and extends 45 miles, north to south, from Normanton in "Bever's bathing vale," to Stanford Park, dear to the Pycheley; and forty, from east to west, between Wymondham and Nether Seal. Its 335 parishes lie in seven hundreds, and the present county valuation is £1,063,686. The population, according to the census of '61, was 243,648, with the males in a minority of 6,202; while the sum total showed an increase in sixty years of more than eighty per cent. By the same tables we find that there were 194 landed proprietors; 3,483 farmers and graziers; 1,051 farmers' sons, grandsons, brothers, and nephews above fifteen engaged on the land; 128 farm-bailiffs; 567 shepherds (out-door); 2,547 servants (in-door); and 16,182 agricultural labourers.

It is not a county of large farms. Nearly half of them, except on the grazing or Harboro' side, are under 50 acres; there are not many above 500, and one of 700 or 800 acres is quite an exception. On the Harboro' side, or "Top Leicestershire" as it is often called, they usually average from 200 to 300 acres, and are let, in some instances, at from fifty to sixty shillings, but more generally from forty to fifty. Large fields, let by the half-year for keeping, will make 24 and upwards. From thirty to forty shillings is the average for plough farms all over the county, but some of the best are let at fifty shillings, and 23 in very isolated cases. Nearly all the farms on Charnwood Forest are small. In the Vale of Belvoir they more resemble those on the Harboro' side in extent, but increase to 400 acres on "The Heaths," or Waltham side of the Duke of Rutland's property.

There are scarcely any leases in Leicestershire, and except upon a few estates competition has increased rents considerably during the last twenty years. The custom of the country as regards unexhausted improvements has grown more liberal, but it is still less so than in Notts. An allowance is generally made to the out-going tenant for draining done by him within six or seven years, provided he has paid for the tiles. If the landlord has found them, the allowance for labour only extends over four years. In some instances a portion of the cost of unexhausted artificial manures is allowed, and so for the most part is one-fourth of the oilcake consumed in the last two years of the tenancy, if no crop of corn has been grown from it. When wheat has been sown on a clover ley, the out-going tenant generally receives 3s. to 5s. per acre for herbage, but not any rent, rates, or tithe; and there is also a three-years' allowance for bones on the lighter soils, and a two-years' one for lime. On mangolds, cabbages, or potatoes £1 per acre is allowed for the unexhausted value of farm-yard and artificial manures; but it is not so with turnips.

There is a lack of good farm-buildings, although a gradual improvement is going on; but much remains to be done, especially in cattle-yards and field hovels. At present many farmers cannot tie up nearly enough beasts on turnips and straw. This system is preferred for the sake of economising food, but there are too often only sheds for half the number, and the rest run loose in the yards, and are often unable to lie down in very rough nights. There has been no lack of spirit among landlords and farmers in the purchase of good implements. Private steam ploughs are kept at Keythorpe, Garthorpe, Prestwold, Gopall, and Burton-on-the-Wolds, and until lately a Smith's cultivator was let out near Twycross; but the ploughing is generally done with two horses, and three on the stronger soils; and the old wooden plough is not yet extinct. Reaping machines and steam thrashers are let out, and one of the most useful combinations we met with, was that of a pulper and a straw cutter, discharging into the same "well" and raising the mixed fodder by a hoist and funnels either through the wall into the carts outside the barn, or the storehouse within. Many Irish reapers still come over, but the machine and the scythe are gradually superseding the sickle. The scythe is, perhaps, most in favour, as it acts best upon strong land, which the machine cannot get into. During harvest, the men seem to prefer taking out much of their increased wages in ale or beer rather than in money, and the agreements as to extra hours, supper in the house, &c., are so various that hardly a dozen farmers could speak to just the same practice. Men-servants hired in the house get from £15 to £20 with rations, and, exclusive of hay and harvest times, when they earn more than double, a labourer's wages will average from 2s. to 2s. 3d. per day.

"Matters of antiquity, history, armory, and genealogy in the countie of Leicester, whose beauty hath long been shadowed and obscured," found their earliest chronicler in Burton, whose work was printed in "Little Brittain, neare unto Aldersgate-street," in 1622. The north-east and south-west sides were credited therein with "good soile and apt to bear corne and grasse." The vale of Belvoir was "inferiour to none neere adjoining for goodnesse and deepnesse of soile," and when cloud and mists hung over its Castle tower, the rustics looked

\* In allusion to Herbert B.A.'s celebrated picture of "*La borare est arare*."

† Vol. iii., Census (1861) Report, p. 80.

up from their toll, and thought of "this old prognostick rime there currant"—

"If Bener have a cappe,  
You churles of the vale, looks to that!"\*

The north-west side for the most part bore a hard and barren reputation. "It yieldeth fruite not withoute great labour and expences, but is still riche in pitcoale and limestone, wherewith they doe husbande their grounds," as well as plenty of wood and fuel, in which the south-east was wanting. Of the latter side, our author wrote that it was "almost all champion and yeeldeth great delight and profit in every way save one." "It affordeth," he added (and this is the earliest allusion we find to its sheep), "many goode and large sheepe pastures, breeding a sheepe to that height and goodnesse, so that (as I have credibly heard) neither *Lemster* nor *Cotswould* can exceed them if one respect, either largenesse of the body, finenesse of the wool, or goodnesse of the breed."

A similar work was "attempted by John Throsby"—under the Whartonian motto, "Knowledge is to be drawn from particularities"—late in the eighteenth century, and a very elaborate one by Mr. Nichol, in the present. The agricultural history of the county entered very little into their plan, and Quaint Old Fuller did little more than make merry with its "masouline beans," and the good silver which they caused to rattle in the pockets of the "stout yeomen," upon whom he strongly pressed the need of a Friday market. The Board of Agriculture commissioned Mr. William Pitt to report progress before 1790, and his elaborate labours are alluded to by Mr. Marshall, in his "Abstract of the Reports." The latter gentleman had himself written the "Rural Economy of the Midland Counties," and resided for that purpose, in 1784-87, at a small village near Tamworth, where four of them meet." His analysis of his rival's authorities (one of whom was the celebrated Dr. Darwin) are sufficiently caustic, and he treated all quotations from his own works in Mr. Pitt's Report as "pearls set in a shifting beach." He found, it seems, no land worth less than five shillings an acre, and few on lease worth less than ten. From fifteen to twenty shillings per acre was the valuation he put on the county generally, "which no other county, Rutlandshire excepted, can bear."

Arthur Young carries us back to 1771, when he left his Bradmore farm for a tour through the North-West Midlands. "Such as were pleased to give intelligence to the author during the course of his tour" were neither few nor chary of speech. He entered the county from Northamptonshire, with his mind full of a close of 212 acres, belonging to Sir James Langham of Hazelbeach, which "waved over the side of a hill, with herds spread out to the eye, more like a patriarch's of old." He had gazed on the 6,000 acres in Naseby field, from which the Ironsides, scarcely a hundred years before, had chased the Cavaliers into Market Harborough, at the close of a bloody summer's day. Booth of Glyndon had shown him cattle of the longhorned Lancashire sort, and a two-horse Rotherham plough. As he rode on his way by Leicester and Loughboro' to Dishley, which Mr.

Coke always styled "the best inn on the road," he "saw a new tool called a spud" at Mr. Ayer's, of Tilton; and found Mr. Shuckborough Ashby a right pleasant guide to the farms round Quenby Hall. He set the average rent of land at sixteen shillings, and of the best grass land at thirty; and he met with no commons but Charnwood Forest and Rothley Plain. He wrote strongly on cabbage in preference to turnips, and considered that spring cabbage for beasts and autumn cabbage for sheep, with barley or oats for straw, should be cardinal points of a new county system. Beef, pork, and mutton were then only 3½d. per lb.; and the consumption of tea, both by labourers and the recipients of pariah relief, surprised him not a little. A lean eighteen-months' wether brought its £1, and a fat one ten shillings more. It was not the practice to send them up to Smithfield out of the grass, but they were placed on turnips for some weeks near Hatfield or St. Albans.

Of the longhorns he gave a much more favourable report than he did of the shorthorns, and estimated the hide at fifteen shillings more to the tanner. Nothing seems to have struck his attention so much as the eleven to thirteen feet, which were taken up by the hedge and posts and rails of the ox fences; and his proposed substitute was a bank between two ditches with posts and a line of feathers on the top, "which not even a deer would jump." There was, however, nothing left for him to desire, when he found the "Bakewell Junior" of that day among his cow-teams. Dishley seemed to him "incomparable in every particular of good husbandry," and with such clean-kept quicks that they were "bigger at three than others at six." His longhorns were "all as fat as bears;" and it was their great improver's boast that an ox of 50 stone had 30 of it in roast against 30 in boil. One part of his stock management was, to say the least of it, peculiar. He rotted the sheep he would not sell to breeders before he sold them to the butcher; and he did so by putting them on pastures over which water was always flowing after the middle of May.

The geological structure of the county has this especial feature, that the change of soil from light, sandy, or gravelly loam to stiff marl is by imperceptible shades. Its different formations are so blended, that we can hardly speak with the decision of the late Arthur Clough, when he described himself, during a visit to his old school, as standing on the blue lias at Rugby, with the red sandstone westward at Coventry, and four miles off the Northamptonshire villages, "all built of their native yellow-brown oolite, and whose peasantry, in their fustian gaiters and knee-breeches, have a yellow-brown oolitic appearance." The eastern part is mostly occupied by the oolite, the blue and white lias, and the intermediate formations; and the rest consists generally of the new red sandstone, and occasionally of gypsum, with vast coal-deposits commencing on the borders of Derbyshire, and skirting Charnwood Forest on the west. It is in this coal-district that the Flora is richest. No less than 165 and 155 species can be gathered in the course of a stroll round Castle Donington and Ashby-de-la-Zouch respectively; whereas you may search Syston pariah at the fertile junction of the Soar and the Wreake, and only find 72.

The hills of Charnwood Forest are varied and boundless in their mineral stores. "Switland Slate pits" has a familiar sound both to the contractor and the foxhunter. Whittle Hill furnishes hones for scythes. Cement-limestone is found at Barrow in horizontal layers, one or two feet thick; and granite blocks for the London streets are hewn from the rocks in the new red sandstone round Mount Sorrel and Quorn. The uplands are in some places gravelly, but mostly consist of a greyish loam, more or less tenacious in its texture. There are eight

\* Mr. Marriott, of Kibworth Harcourt, in Top Leicestershire, who has registered the rainfall for several years past, informs us that the average for 1856-67 is 23 inches 54 parts, and that the highest rainfall for any year was 30 inches 18 parts in 1866; each part signifying the one hundredth part of an inch. The years 1857, 1860, 1862, and 1865 are next in order. In the driest year, 1864, the rainfall was only 18 inches 4 parts.

† This is Mr. Mastin's computation in his History of Naseby, but the award of the Enclosure Commissioners in 1822 puts it down at 3,375 acres.



kinds of loam between Melton Mowbray and Normanton, though few but a geologist could detect the shades of difference, as the soil shifts from "sound grey" at Waltham to snuff-coloured" at Braunston, and then to the strongest or "deep grey," which dips from Stathern Point into the vale of Belvoir. Sheep-management varies considerably upon them. In the meadows of the Wreake, near Melton Mowbray, lambs are very seldom wintered. Between Thorpe Arnold and Grantham the sheep eat the turnips off the land, whereas in the vale of Belvoir the cold clay bottom will not admit of it.

The soil is generally deep and not easily burnt up. It may be divided into three great leading classes—friable clay loam for corn and grass, sandy or gravelly loam for barley and turnips, and excellent meadow pastures along the rivers. There are frequent deviations in management, according to diversities of soil and variation of seasons; but the four-course is most general. On the lighter soils the following rotation is usually adopted: 1st, fallow for root crops; 2nd, barley with seeds; 3rd, seeds; 4th, wheat. If the farmer wants a two-years' ley instead of corn, when he seeds his land down, he sows white clover with the usual mixture of rye-grass, &c., and red clover if only for one year. The quantity required per acre for the former is one bushel of 25 lbs., which costs twenty shillings. On heavier soils the six-course rotation is followed, to wit, 1st, dead fallow or roots; 2nd, wheat or barley seeded down; 3rd, seeds; 4th, wheat; 5th, beans; 6th, wheat or oats. If more than one year's seeds are required, and the plant will stand, a second year may be taken, and one less in corn. On the land round Tooley, which naturally "grasses" well, four or five years' ley is adopted, which enables a farmer to stock very heavily with sheep, and then break up for oats, when eight to nine quarters have been obtained per acre. In the Upton district the six-field course often runs thus: 1st, break up for oats; 2nd, wheat; 3rd, turnips, mangold, peas, beans, potatoes, vetches, or dead fallow, or a mixture of these crops; 4th, barley; 5th, seeds; 6th, seeds. In many cases, the second year's seeds are dispensed with, and the five-field course adopted. The practice is very variable, as some parishes in this district grow very good wheat and beans, while others suit turnips or barley. There are farms in which no particular course is followed, but that crop is taken which seems likely to pay most at the time. As a rule, in the south-western district the oat crop is worst and wheat and beans best.

Upon the clay lands a dead or summer fallow is generally taken; but on the lighter soils, in order to start the rotation, a crop of swedes, white turnips, or mangolds, &c., is grown. The turnips are principally consumed on the land, and the rest drawn off and eaten in the yards. The old system of pin fallows (sometimes called bye or bastard fallows in Northamptonshire), which consists in breaking up the wheat stubble in autumn, cross ploughing, scarifying, harrowing, and burning the twitch preparatory to putting in the barley crop, is very much gone out, as, except in very dry seasons, it cannot be done with advantage. There is, however, much less necessity for it than formerly, as twitch and couch grass are rapidly disappearing before a higher system of farming.

On some of the lighter soils the wheat is stocked heavily with sheep in the spring, in order to consolidate the root. If the weather is fine, and the land in good condition, the plan is considered by many, apart from the keep thus obtained, to act nearly as well as the clod-crusher and roller, as it prevents the plant from lodging so much in a wet harvest time. If ewes and lambs are put in, there is sometimes danger of the best lambs dying very suddenly from eating too freely, or from the change it produces in the milk. The stronger land, which will not bear treading, is very seldom stocked, and some far-

mers have calculated the loss at harvest by doing so at a quarter of wheat per acre.

The wheat, which is principally winter-sown, is, like the barley crop, very generally drilled in, which enables the farmer to hoe it in May at much less expense, and far more efficiently. This is nearly always done with the hand-hoe, but the patent poppy-extirpator or light harrow has been used across the drills in light soil with very good effect; and if this is done early enough in the spring, before the weeds have got deep hold, it dispenses with hand-hoeing altogether. Its effect is very good, as the extirpator does not draw away the soil from the plant like the ordinary harrow, but moulds it up. The usual rate of seeding for the oat crop is about four bushels to the acre, which is very often sown broadcast. The most improved mode of putting in the bean crop is dibbling by hand, with the aid of a line across the ridges in rows sixteen inches apart. The holes are then kicked in by the attendant boys, and one harrowing (which can be deferred a fortnight, if necessary, for fair weather) with a pair of horses finishes the operation. This mode of management leaves the subsoil much less "set" than when the crop is drilled in with three horses, and has had two harrowings as well.

The horse-hoe is rather falling into disuse, as, independently of the loss occasioned by trampling down the headlands, the work is very much better done by hand; and as the horse-hoe cannot act without damage under 20-inch rows, there is a great saving of space, and the yield is for two reasons better in consequence. Two or three beans in a hole are preferred to more, and when the plan is followed out by a clever setter, the rows would delight even a Dutchman's eye.

Lime is used extensively on breaking up the clover leys for the oat crop, and is also mixed in large heaps with ditch scourings, &c., and the addition of salt, as top-dressing for grass-land. When yard manure is drawn out into the fields, the cart is generally driven on to the heap and tipped, in preference to forking up the dung loose, and allowing a second escape of ammonia. Some farmers put a two or three-inches coating of soil on the top to fix it, when the heap is finished. Lord Berners bore testimony a few years since at *The London Farmers' Club* to the value of covering manure until the time for spreading. His lordship observed that "he had ordered the manure to be covered up in heaps as it was brought into the turnip field, and so to remain until it could be spread and ploughed in. The result was, that in the month of September there was one portion of that field, which had been so covered, where he was up to his knees in plants, whilst the other was only a little above his ankles. Inquiring of the bailiff what could be the cause of the difference in this otherwise fine crop of swedes, he was told that at that particular part of the field where the turnips were smallest, the labourers had been caught in a thunder-storm on the Friday afternoon, and could not get to work again until the following Tuesday. Consequently the manure had remained uncovered for four days; and it was plain, from the very first springing of the turnips until they were gathered in the winter time, where the men had left off. In another field the wheat-stubble was in one part so strong that he could scarcely get his pointers into it, and it was as high as his knees. Mentioning this to the bailiff, the latter said, 'If you mean a point from a certain oak-tree in that field where the stubble is so strong, I can tell you the reason. It was this: You came to me, and found fault with me for not having covered up the heaps just at the tree, and it was from that point that we covered them up for about six or seven acres.'"

The tendency of late years, in the grazing districts, has been to increase the arable as ancillary to grass-land,

so as to manufacture as much meat and wool as possible. There was a day within the late Dick Christian's recollection, when he rode in a run from Cant's Thorns "thirty miles on end to Harboro', and grass all the way;" but since that proud and happy time Old Pasture has quite bowed its head to new prices. Towards Loseby and Twyford, which were both in the line, the plough has gained on the grass; and about Great and Little Dalby fully eight hundred acres of inferior land has been broken up within a few years. The plough has also stolen a march round Prior's Coppice and Owston Wood; and on the hill-side, between Braunston and Withcote. Carlton, Noseley, Shankton, Keythorpe, and those Top Leicestershire districts generally, are all keeping more sheep on their grass-land by the aid of roots; and it has been found that, by breaking up a fourth of four hundred acres of rather mossy pasture, which will hardly keep a sheep in winter, a farmer is enabled to double his flock. There are many graziers who have no plough-land; but they seem to be coming round fast to the opinion that "those lands which are one-fifth on the plough are occupied most advantageously." On the strong clays between Melton Mowbray and South Croxton there is very little change; but in the East Foscate Hundred some fields have been laid down, simply, as was observed to us, "because farmers tire of working with four horses for forty shillings a quarter." Near Loughborough laying down is rather the fashion; but on Charnwood Forest a great deal of land has been broken up for turnips, followed by barley, with two years' seeds, and then oats, and it is rather a common practice to penfold the oat-stubbles with Sheep. On the Leicester Forest and Bosworth side there has been very little change, but, if anything, in favour of laying down, though some bad old pasture has had the plough put through it. On the Duke of Rutland's estates, the temptation to "make the corn-sacks walk to market, instead of being carted there," has induced many to lessen their arable land; but we should say that, speaking of the county as a whole, more furrows are turned up every year, but more with a view to the meat-market than to Mark-lane.

Long Clawson and Hose, in North Leicestershire, have no mean fame among pastures; and some of the best on the Harborough side are on the clay at Lubbenham, Oadby, and Great Bowden, and carry one bullock and nearly two sheep to the acre. Glooston and Cranoe, which were once wheat-land, have been laid down; and Glooston is said to feed bullocks as fast as that famous 100-acre close, Old England, by the Welham-side. The best pastures are always grazed; but bones and liquid manure are very seldom used, and they receive no top-dressing beyond knocking the dung about; while the inferior ones are top-dressed, before they are shut up for hay, with a little lime, and sometimes with nitrate of soda. A ton and a half of hay per acre is a good average crop; and two crops are very seldom taken. Of the management of grass we have spoken more fully in connection with cheese-dairy farms.

Leicester, Loughborough, Market Harborough, and Melton Mowbray are all large wheat-markets, more especially Leicester, which is chiefly ruled by the Liverpool quotations. The farmers always sell, as at Nottingham and Grantham, by the "18 stone nett of 63lbs." to the bushel. The Vale of Belvoir grows good beans and wheat, principally red, but inferior in skin and quality to that grown on the gravelly soils, which commands one or two shillings more. Barrow-on-Soar and Cossington, both of them on the cement-limestone (which has a large proportion of phosphate), grow the best description of white wheat; and there are also some capital crops at Diseworth, and between Breedon and Donington. Charnwood Forest combines fair wheat and barley with good

oats. The land about Upton also suits it as well as beans; and red wheat is the favourite in the Harborough country. Round Loughborough both red and white wheat are used pretty equally; and a mixed quality is also much liked, and thought to yield better than either. The Essex White is sown more round Barrow; and its fine "pastry"-flour is so esteemed that the Nottingham and Derby millers send it to Manchester and Sheffield, and make three or four shillings more for it. Improved and Druce's White are also in fashion; and so is Romer's White, more especially on high-conditioned land. Golden Drop and Browick or Bristol are also "well-accustomed" reds, but not equal in quality to the Red Lammes or Old Red, which sometimes produces five quarters from a fallow crop, and breaks so well in the mill.

It is on the whole rather a fluctuating county for barley, which is not very first-rate, and is principally consumed by cattle. The climate does not suit it, and colours it too highly for pale-ale purposes, and it grows so much straw that it is apt to get laid. If the Burton brewers purchase it they choose the Chevalier, but Earl barley from the Harborough market is their sheet-anchor. Many farmers grow the old long ear, a rather coarse luxuriant sort, with sometimes twenty corns on a side. Queniborough has some "quality barley" on its sandy loam; and Cossington is nearly as famous for it as for wheat. It is also grown pretty good, but, like the oats, with no great strength of straw, on Charnwood Forest, and, in fact, all the way from Dishley to Leicester, through Quorndon, Mount Sorrel, and more especially at Syston except in very dry seasons. Hardly any is grown in the Harborough country except about Smeeton, and taking one season with another, for beautiful colour and malting purposes, the midland brewers depend most for their home supplies on the thin, stony soils near Stamford.

Oats are not so much cultivated, and for the most part on ground newly broken-up. Old turf ploughed-in leaves more in the land to feed future crops than when it is pared and burnt; but the oat crop is very liable to be attacked by the wire-worm unless liming and clod-crushing are very carefully carried out. Paring and burning are a more popular though expensive process, and many landlords object to it on account of the future deterioration of the land, especially if it is too deeply done. Turnips are often sown instead of oats, a plan which gives six weeks longer for burning, and then two or three white crops can be taken in successive years, if agreements will admit of it. The Canadian Poland oats require a deep soil to mature them, and the earlier they are sown the better. Black One-sides or grey oats thrive best on very well-conditioned soil, and Scotch Potato have less straw and are generally ten days later. Tartarians are little sown, and Frieslands flourish bravely round Melton Mowbray, and go principally to the Matlock millers. The Harborough side grows this crop pretty well, but the largest supplies come from the parts about Leicester and Loughborough, and are chiefly Canadian Polands, weighing "18 stone nett of 45½ lbs. per bushel." The bulk of them goes to Nottingham, and some of the finest samples to Manchester.

Leicestershire is not given to "rejoice in potatoes," and its home supplies are principally drawn from the Lincolnshire fens. A considerable quantity was once grown on the north of the county, but "since the disease they have dwindled to a tenth;" still they hold a place in the green-crop rotation on the Duke of Rutland's estates. The Lincoln Reds are grown more on the Lincolnshire border, and Flukes, a late potato but rather uncertain, as well as Farmer's Profits, have rather given way before Second Earlies and Irish Protestants. The last-named is a very good sort—prolific, mealy, and sizeable. There are good creesh or "red soil potatoes" at Knipton, but the

crack parishes for them are Braunston and Eaton, two or three miles south of Belvoir.

A great many turnips are grown on the clay of the Vale. Root crops also flourish well on the black soil of the Forest, and the swedes near Beaumanor have taken the Loughboro' Agricultural Society's prize. On the lighter, sandy soils about Peckleton and Kirby Mallory, capital swedes and Improved Skirvings are grown, but towards Stoke the land becomes stronger and less suited to them. At Cadeby, Osbaston, and Nailstone the sheep can eat them off the land, but not at Upton. About Narboro' and in the Harborough country they are never eaten off, but put down upon the grass. Very few are grown about South Croxton, which is not strong feeding, but strong working land, and hence the farmers very seldom finish off their beasts, but sell them as "Norfolk steers" between Michaelmas and December 8th.

Mangolds and cabbage have been introduced very largely since there was a failure in the turnip crop. This crop is nearly everywhere taken after wheat, and the land is dressed in autumn by some of the high farmers with twenty tons to the acre of farmyard manure, and sown in spring with three to five cwt. of salt according as the soil is strong or light, but on some farms three to four cwt. of guano per acre and some salt are deemed sufficient. The Yellow Globe has been very much run on, and so have the long reds on strong soils, as they grow more out of the ground and do not gather so much dirt—although they are, for this reason, more easily affected by the early frost.

Cabbages require as high farming as mangolds, and nitrate of soda and guano suit them best. It is found to be a very expensive and impoverishing crop, and generally follows wheat. The land requires to be very clean and well-manured, and we have heard of it getting in a very rare instance from 25 to 30 tons of farm-yard manure per acre. After such a dressing the crop is always eaten in the yards or on the grass. Under any circumstances, eating off cabbage makes great waste, and wherever it is practised only every third or fourth is left on the ground. Where the land is very strong, eating off is also objectionable for another reason—that the dead leaf and clay get into the sheep's feet and lame them. The drum-head cabbage, which is "all heart and no peel," is first-rate for teaching lambs, or feeding off cull ewes on the grass. From 45 to 60 tons have been grown per acre at Narboro' Woods in a good season; but they should be all consumed not later than November, as they are apt to open and crack with the wet weather. Lucerne is sometimes grown to the extent of two or three acres, for horses; but there is very little rape to be found in the county, and scarcely any mustard. Peas are sown to a considerable extent on the light soils; and are given, along with beans, to the hogs, which are thought by some farmers to acquire more bone and fibre on them than on any other food. Beans thrive on all the strong land, but are rather subject to blight on the lighter; very heavy crops of them are grown round Belvoir and Melton Mowbray, and the run is generally on the hardy and prolific Heligoland and white-eyed bean. About South Croxton and Billesdon the land does not suit them so well; but they are much cultivated, both in spring and autumn, about Six-Hills and Ragdale. Not many beans and peas are grown about Aahby-de-la-Zouch; and Berton-in-the-Beans is by no means superior in its growth to the parishes round it, whose farmers prefer peas, as the straw is more useful for stock.

Owston, Launde, and Tilton—which Jack Goddard and Frank Goddall know so well—are the big woods on the east side; but the great mass of the woodland is still upon Charnwood Forest, and, whenever owners plant

there, it is almost invariably with larch. Hollies flourish in rich luxuriance in the south—and more especially, to our eye, in the neighbourhood of Earl Shilton and Bosworth; while in Top Leicestershire the ash has been sown by winds or birds in almost every hedge. Woodmen tell you with pride of the ashes of Barton Field, and of the elms of Wistow. Between them, these two trees do yeomen service, as the ash supplies the felloes and the "hubs" of the wheels of those blue-and-red and straw-coloured four-horse waggons in which Leicestershire delights. One-horse carts are not nearly so much used as in Northamptonshire, and in hay and harvest-time they are hardly seen at all.

The woods, which are gradually being thinned, are generally a tangled mixture of oak and ash, with hazel undergrowth. In the detached ash-holts, the poles are shoots growing, for the most part, from old "stools," and generally seasonable and fit for cutting every 17 or 18 years. In *Viscount Hood v. Kendall*, which was tried a few years since at Leicester, it was found by the jury that there is a universal custom that such poles are not "crops," but belong to the landlord, in the absence of a special agreement. Leave was reserved to the defendant to move to enter a verdict, if the court above should be of opinion that, notwithstanding the custom, the defendant had a right to the poles; but, as it had not been left to the jury to consider on what terms the tenant held the farm, a new trial was ordered. The matter was, however, settled out of court. Such ash poles are very valuable for rails, the oaken posts for which are generally bought in Northamptonshire; those with three holes can be got for 8d., and those with four at 1s.

A good ox-fence consists of a flight of post and rails (for which wire is sometimes substituted); two yards from that, a four-foot hedge planted with quicks, and strongly back-fenced with maple, sallow, or blackthorn out of the woods, and then a wide ditch. Horses, resolutely ridden, will often clear from nine to ten yards over them. "I like the rail best," said an eminent huntsman to us, "on the other side of the hedge; so that, if the horse does not quite clear it, it will break if he drops on to it with his hind legs." They are generally strongest on the Harborough side, from Kibworth by Stanton Wyville, the Langtons, Hornyhold, and Hallston Bottoms. Some of the biggest bulfinches have been left for cattle shelter, and not cut for 30 or 40 years. For practical purposes they are useless at this stage, as, when they have once risen to 13 or 14 feet, there is little or no shelter at the bottom. About 10 or 13 years is the longest period to which they should be allowed to run, as they do not require so much putting down, and the old layers will use up again. The truth of the saying, "Good land, good fences," is patent from the bad growth of the quicks in the Six-Hills country. The little two and three acre fields with high hedges, round Dishley, are all gone; and in some parts the exigencies of steam-cultivation have also acted as a most potent hedge-grubber. About Normanton, where there is no "kettle o' steam," there has also been a great fall of hedge-row timber, and fields of 15 acres have been more than doubled. The only stone walls are on Charnwood Forest; but they are built very stiff, with sharp copings, which "cut a hunter's knees like a knife;" whereas, in Gloucestershire, "he can generally take a foot out of the wall, and no account." Wire-fencing, a yard off the hedge, has rather increased towards Pickwell and Leesthorpe; but the fox-hunting feeling of the country is against it, and the introduction of lease covenants to that effect, as well, have caused it to be pretty universally taken down during the hunting season.

Great strides have been made in drainage, and the results obtained by a very careful and scientific system at

Keythorpe have been already detailed in the Royal Agricultural Society's *Journal*.<sup>\*</sup> Thirty years ago a Leicestershire agriculturist was very strongly in favour of continuing to drain with straw in preference to tiles. His argument was to the effect that "draining with straw leaves pores in the clay, and thus leaves a possibility for water to get down; whereas if you put in a tile you put in clay on it again that soon becomes adhesive, and nothing gets through it." He did not then purpose going deeper than eighteen inches, and it was thought by many that water might percolate through two feet; but any one who proposed four feet was deemed ripe for the asylum. On some of the strong grass land two feet is still not exceeded, and is thought to keep the surface greener in a dry summer; but the conventional depth is from three to four feet, and ten or twelve yards apart in gravel and seven to ten in clay. A considerable amount of Government drainage has been done on large estates, at four feet with two-inch pipes, which have quite superseded the tiles set on slate. Clergymen have availed themselves of the loan pretty extensively for their glebes; and if the landlords take it up, they generally charge the tenant five per cent., and pay the one per cent. themselves. The Duke of Rutland and several of the landowners give the tiles, the tenants finding the labour; and this is in fact the pretty constant practice throughout the whole county.

And so from white and green crops—from oxen and woodland—we turn to stock at last. There is no lack of local show-stimulus, and "The Leicestershire and Rutlandshire Society," now "The Leicestershire and Waltham," was in being as far back as 1808. It did not seem to strike its committee, as it had done the apologists whom Arthur Young met on his way, that "ant-hills made a varied bite for the cattle." On the contrary, they offered a premium of 80gs. in that year to the man who "will free not less than five acres from ant-hills in one year; but still they made him wait "for proof of efficacy" three years for his money.

The Sparkenhoe Farmers' Club, whose lists are open to All England, is not, strictly speaking, a county institution, but selects its places of meeting from Staffordshire and Warwickshire as well. Its show is held early in September, and moves annually to one or another of nine towns. Agricultural labourers, single or married, framework knitters, farm-boys, and dairy-maids, all receive prizes, under certain well-considered restrictions. The skill of drainers and hedge-cutters is duly recognized, and, besides the general competition, there is a champion class among ploughmen "for the straightest ridge of two furrows." Rearing lambs is a science, which receives special attention, and the shepherd classes are quite distinct for long-wool, short-wool, and cross-bred flocks.

The store cattle judges are especially enjoined "not to take into consideration the present value for the butcher." Longhorn men regard the show as quite a rallying ground, on which they can still successfully give battle to their Teeswater supplinters. It is also as great an honour to be the Sparkenhoe cheese champion of the year as it is to get the highest price per ton at the Leicester October fair. The prizes, which amount to about £700, extend to pigeons, poultry, and rabbits, as well as barley for malting, fruits, and flowers. Conjointly with the two other societies, it has given a considerable impulse to poultry breeding in Leicestershire, where the Dorking is quite the prima-donna of the hen-roost.

The Loughboro' Society is conducted much on the same principle, and so is "The Leicester and Waltham," which holds its meeting in August, and is very liberally supported with special prizes, which swell its added money to about £850. The horse element is especially predomi-

nant. Hunter prizes are open to all England, and three are limited to six neighbouring hunts. A Scottish society makes fifteen hands the limits of its butter-milk cart horses, and fourteen-two of its sweet-milk cart ponies; and so in these Leicestershire lists a "cob" may not exceed the latter height, while a "hack" may range between it and fifteen-one. We know no higher standard of orthodoxy for country societies to follow.

Still there is none of that enthusiasm for breeding hunters with "great hips and rumps, and hocks a little in," which animated the breasts of "the old Blincoats." "Those crashers would hardly wait for hounds to get on the scent;" and they bred and rode such horses that Jonathan King, of Beeby, would hardly take one out of the stable to show a purchaser, under 300 gs. Many other farmers, who did not ride in this long blue coat and gilt-button brigade could sell to the Meltonians at £180 to £200; but very few hunters are bred now; and the days when Carver of Ingarsby could say that he got 300 gs. apiece for seven colts out of one mare seem to have faded into fable. Four-fifths of the Leicestershire hunters are now bought in London; and many of the rest are originally Irish colts, which have been brought over by the dealers to fairs at Leicester, Tamworth, and Belton (where Welsh pony buyers for the coal mines also resort), as well as the more finished material, which may be seen after a canter over "the forest" to the snug stables at Talbot-lane. If the farmers do use a blood sire, he is mostly put to a light waggon mare. Their choice of such sires is also very limited. They want another Vivalda, with his long, low, and lasting horses, which always, young or old, "had a leg to spare at a fence;" a Julius Caesar, with his fine tempered, up-standing, and "spawny bays; a Cannonball, with his good-looking, clever-actioned, middle-weight stock; and a Belsoni, with his big, plain browns, rather sour in the temper and forge-hammer in the head, and never quite ripe till they were rising eight. Cart-horse breeding is the safer aim of the Leicestershire men, when, as in some of the rich grazing farms, they do not grudge a colt his grass. A great number are sold at Waltham fair, on or about September 19th, where they usually come up, at two off. These Leicestershire colts are also in strong force, side by side with the kindred levies from Northamptonshire, Lincolnshire, and Notta, at the Rugby Martinmas fair, which lasts from the 15th to the 23rd of November. They are of all ages, from yearlings up to five years old, with a strong dash of the Clydesdale as well as the old Leicestershire horse in them, and mostly browns or blacks. The plough-farmers of Oxfordshire, Berks, and Bucks generally buy the juniors; and if there is anything with age and substance for dray-work, the London dealers seldom leave them.

March 2nd is the large spring fair at Leicester for store beasts, and there are also Low Fair and Palm Fair before and after Easter. Every Leicester Saturday is more or less a fair up to Old May-day. April 2nd is also a large fair-day at Lutterworth, and so is Holy Thursday. Market Harborough has a very large one in October, and the "Norfolk Steer Market" is held at Leicester on December 8th. From March to June the Shropshire, Hereford, Welsh, and Irish cattle are poured into the county through Leicester market, and again from September to December.

The Hereford still holds the lead of its kinsman, the black with white face Shropshire, and the Welsh runt, but there has been no Hereford dairy in the county since Mr. Henry Chamberlayne of Desford died in '53. He bore an honoured name in Smithfield Club annals, and besides acting as steward, he added to his head prize for a Hereford bullock in '38 the gold medals of 1838-39 for Long-woolled wethers, with Leicesters bred from his

<sup>\*</sup> Vol. xiv. p. 96.

own ewes, and two of them by Buckley rams. Herefords have always been liked in Leicestershire, not only for their feeding qualities, but for their fine tempers in the yards, where the horns of the West Highlanders are never at rest. The Shropshire was once upon a time more of a smoky-faced brindle, until he was "crossed up" about Pontypool and Welshpool, with the Welsh and Hereford cattle, and took to the coat of the one and the face of the other. Still his ancestry will hardly repay inquiry, and no doubt has much in common with the Montgomeryshire and Glamorganshire breeds, both of which are nearly extinct. The former of these two was once very common in Shropshire, and in many points, except its superior size, resembled a Devon; while the latter, with the substitution of black for red, was very like a Hereford in its colour marks. Be their pedigree what it may, the Shropshire, like the Runts, are good ones to rough it, and when there is not room to tie up all, they have to lie in the yards. A few West Highlanders, Devons, and Galloways are still to be seen; but that once great Scotch fair at Melton Mowbray in August, where "the heavy blacks" from the Stewartry might be found in droves, now knows them no more; and "The Shamrock" has quite superseded The Thistle. The heaviest cattle supplies are sent up to Smithfield between July and December, and in a straggling way during the first half of the year. There are not many cows and heifers amongst them; but any shortcoming in this respect is made up by the bullocks. Still there is no doubt that the Leicestershire farmers stock hard, and one season with another send off beasts quicker than they once did, and not so ripe in condition; and in a Top Leicestershire 400-acre farm a grazier will have about 150 beasts and 600 sheep.

The longhorns still struggle for a separate existence in a small district round the point of impact of Warwickshire, Derbyshire, Staffordshire, and Leicestershire. They had made themselves a name at Upton as far back as 1745; but it was not until 1756 that the blood of the renowned Twepeany, from Dishley, began to tell, and caused Bakewell to speak of George Chapman's as "*one of the best herds I know anywhere.*" Some years after Bakewell's death, Shakespeare of the sort made £430 at Mr. Prinsipp's, of Croxall's sale; and it was said that 700gs. was refused for Tiger. With such traditions to inspire them, we can hardly wonder at a select few "clinging to this expiring cause" with more than Jacobite zeal. The Upton herd has an uninterrupted title of more than eleven times eleven years, in grandsire, sire, and grandson. The present Mr. Chapman has taken seven firsts and a second with them at Smithfield, and five firsts and as many seconds at Birmingham, besides breeding three other winners. Competition at these shows is always very limited; but his steer of 8 years and 8 months, which took double Christmas honours in '63, won the Sparkenhoe county cup in the same year, against two longhorns and three shorthorns. Mr. Chapman has also taken £70 in Royal Agricultural prizes at Exeter, Windsor, Battersea, and Plymouth. Among his champions were "Exeter," with his shaven poll and great brindled carcass, which weighed 91st. 12lbs. per quarter, and "Sparkenhoe," that "grand old longhorn bull, himself one of the greatest curiosities of the show," who journeyed still farther west in '65.† Mr. Godfrey, of

Wigston Parva (who won with a pair of cows, when the Royal Agricultural Society met at Warwick), and the Messrs. Taverner, of Upton, have also longhorn dairies in Leicestershire; but Mr. Green's and Mr. Astley's of Odstone herds were dispersed when their owners died.

The adherents of the breed muster twelve or thirteen more in the three adjoining counties; but a few of them are not purely longhorn men; and one of them, Colonel Inge, keeps a shorthorn bull. They give as the reason of their faith in beasts of the sort, that they are not only hardier, and keep their young looks longer, but furnish more meat on the best parts, and a greater weight of carcass at a less outlay. The cows, which should calve, if possible, at three years old, feed fastest from that age to five, especially if they have had a calf. Their tendency is to feed more on the back and barrel; and hence the butchers are rather prejudiced against them, and say that they have not enough of the steel-yard inside, and do not "prove" so well in consequence. Many of the cows will hold on well to fifteen, and then feed up to eleven or twelve score a quarter. A yearling bull will make from 15 gs. to 25gs., and some years ago a two-year-old was sold by auction for 50 gs.

Mr. Burbury has bred them white, but the darker colours are preferred. Dark brindle is thought very hardy; but Mr. Chapman and some other breeders like cherry-red, with the back white, and the sides coloured. The coat should be as curly as possible; and a face with a darker shade intermixed is liked better than a white or bald. They are a remarkably docile race, and their thick skin saves them in a great measure from the torture of the gadfly. The tanners set much store by it, and will pay as high as £2 7s. 6d. for a first-rate bull's hide, and still higher for that of an ox. Good keep gives that blood-red tinge to the horns, which is always prized by a breeder. They begin to show the age wrinkle after three, and run into all shapes. Some grow so much down that the cows can hardly graze, and they require to be sawn off, like "the wheel-horn," which will curl right back into the nose. Others go straight away into space, at an acute angle; and it is not very uncommon to see one following the usual curve, and the other curled into the "scorp," like a boxer's hands in position. To walk down the massive red-and-white line of forty cows at Upton, all busy with their hay bundles on the pastures, and the thirteen-year old "Rose" still "blooming fresh and fair" at their head, is a very pleasant picture, even on a January day, backed up, as it is, by Bosworth Field, whose well still marks the spot where the third Richard lost his life and crown.

As a general rule the plainest cows are the best milkers, and the milk of a seven or eight year old one is generally thought the richest. Some of the best "fill-pails" will give 19 quarts at two meals, and the dairy farmers have made 4½ cwt. of cheese from one cow. They are kept in winter on barley straw and pulped turnips, and mostly calve early in April. Calves get new milk for three weeks or a month, and then have linseed and oilcake dissolved in gruel, with the over-night's milk or whey. The cows are good nurses; and one of Mr. Chapman's, which had only three teats, brought up a bull-calf on each with credit. Some of them have been sold recently to Mountserratt, as well as to Ireland. They are crossed with Shorthorns to a small extent in the county, and the "half-horns," as they are called, milk well and come to a great weight, if they are not taken beyond a first cross.

H. H. D.

\* Report of stock stewards at Plymouth, Royal Agricultural Society's Journal, vol. i. (S.S.), p. 364.

† Mr. Chapman's most recent purchase of new blood has been from Mr. Fletcher Riggs, of Wythop, in Cumberland. This is going back to first principles, as the Drakelow stock of Sir R. Grosley, on which Mr. Webster, of Canley, near Coventry, the first scientific improver of the sort, is said to have worked, was kept up by bulls from that county and Westmoreland.

## THE ESSEX AGRICULTURAL ASSOCIATION.

## MEETING AT CHELMSFORD.

In the exercise of a certain timidity, or still more certain selfishness, the show of the Essex Agricultural Association is still mainly confined to the county. In this respect it does not rank well with its neighbours; and any further comparison would be as unfavourable, for despite the admirable way in which the old "Royal" ground was laid out, the meeting was at most but a partial success. The cart-horses were with a few exceptions so indifferent, that a well-known breeder and judge, who has so far voted for a continuance of the home-trade in prizes, declared that he could support such a system no longer; while Messrs. Newton and Little very candidly expressed their surprise at the sheep and pigs, and at having come so far to see so little. On the other hand, notwithstanding the absence from the lists of such supporters as Messrs. Marjoribanks, Bramston, and Clayden, who have lately been selling out, the entries of Shorthorns were very creditable; as a good word may be certainly said for the general strength of the riding-horse section. Then, again, the town and district took up the visit with a deal of heart. In association with the Association there were flower-shows, poultry-shows, and dog-shows; flags were flying and shops were closing; as in fact there was plenty of spirit evinced everywhere, save just where spirit should have been most prominently displayed. Let the entries be thrown open, as they are in Norfolk and Suffolk, and let any animal be allowed to win, so long as he is good enough to do so; and then, and not till then, Essex, as we have just said, may take rank with its neighbours.

As it is, and but for the offer of a few All-England premiums, the proceedings have of course little beyond a merely local interest and influence. After looking through the sheep, the judges came to look still harder at their instructions, which went to say they were "not to award any prize in classes in which the animals exhibited did not possess sufficient merit." Here was clearly a dilemma on the face of it, for the entries were but few; some of these were not sent, and those that were had but little merit. If the Essex Society be still to continue a "limited" company, it is a question of some moment whether these excellent instructions should not be amended, or more properly altered? Or, by another meeting the prize list may itself read in significant commentary on this restrictive principle. However, Lord Braybrooke was permitted to take the premiums for Southdowns against absolutely no competition. The Audley End sheep show a deal of breeding; but the rams, more especially, are small, light of wool, and anything but good in their symmetry, beginning with snake heads and weak necks. The ewes and fat shearlings were better; but even these did not come up to the character of the Smithfield Club prize pen. Mr. Giblin had it almost as much his own way with the Cotswolds and Oxford Downs; but these would make no mark out of the county, and so Mr. Hugh Aylmer of course took the open prize for long-wools with a small but useful sheep of very superior quality to anything of home-growth. In the other short-wools, Mr. Portway won with some coarse useful black-faces; but these sheep are so plain, that they can never tell in the show-yard, while in charity to some of the other exhibitors of other short-wools, we will say nothing more about them. The judges had the

wooden spoon ready for one pen of ewes and lambs, as "the worst lot seen in a show-yard for a very long time." By the way, would it not be as well at a limited county meeting to have a wooden spoon for the worst lot in every class, as inducement for doing better? On this showing, the sheep judges would at any rate have had something to do at Chelmsford.

Of pigs there was a very short entry; but we have before now spoken to the merits of Mr. Griggs' Berkshires, as really good specimens of their sort, and now crossed, as the boars are bred from Captain Stewart of Gloucester. Still they could make no stand in the All-England classes, where the Sextons could not and Mr. Stearn would not show, and so as at Downham the Duckerings and Mr. Crisp had it all their own way, with Lincoln for large and Suffolk for small, as usual.

It may be as well to have it known that the horror of one of the Shorthorn judges—and two of the three were "Royal" authorities—is "a pretty bull." And as Lady Pigot sent a pretty bull in the well-named Charles le Beau for the All-England premium, her ladyship reached but a high commendation, and Mr. Christie kept the prize in the county with Duke of Grafton, by Duke of Geneva, bred by Lord Penrhyn, a big, long, broad four-year-old, of good quality and with some capital points, being especially good in his back and hind quarters, and well let down to his hocks. Against all this, he is light in his neck, and has a rather tapering egg-sucking head, but is nevertheless at all points a grand useful bull, that might have commanded some notice at Leicester, had his owner hardened his heart to send him on. He could not take the first prize class of the county here, because he took it at the show in 1867; but the judges held to his line so far as they could. They made his daughter Potentilla their choice in the youngest class of heifers, and then took her with her father and mother as the best family party, or bull, cow, and calf; the cow Primula having previously won prizes at all stages from a heifer calf upwards at these meetings. The first prize bull of the county, Mr. Upson's Sorcerer, is a good well-grown three-year-old, also bred by Lord Penrhyn, and a long way the best of a short class. There was nothing very extraordinary amongst the two-year-old and yearling bulls, Colonel Brice in the younger class fairly beating Mr. Sturgeon's good-looking one on the nice points of hair, hand, and quality. In a better lot of cows, over which some commendations were scattered, Mr. Upson was again first with a fine taking cow in high condition, the second being weak in her loin, but showing a deal of breeding. The best two-year-old heifer was in anything but show form, having recently calved, and being very poor, so that all due allowance had to be made for her by "judges"; while they got on again to the Duke of Grafton vein in his daughter Patchouli 4th, a well-grown handsome yearling, of good colour and quality; Mr. Pigot getting next with another very nice heifer in Dagmar. Another daughter of the Duke, as we have already mentioned, was the best heifer calf; but the trio of judges got terribly at variance for a second, each taking and holding to his own, until Mr. Aylmer had to be called in, when he went with Mr. Garne for Ringlet, another daughter of the Duke of Grafton, a son of whose was also the best bull-calf. Amongst the Shorthorns without pedigrees Mr. Upson

took the prize for heifers under twelve months old, with one that for style and quality showed a deal better than many to be found in *The Herd Book*, as it appears, she is bred at least on side of her head; whilst far among the best dairy cows was a beautiful Alderney exhibited by Mr. Beadel; but the judges kindly took it into consideration that she would be worth little or nothing when she had done with the dairy, and so they highly commended her, and gave the two prizes to two Shorthorns. As Shorthorn men they no doubt did quite right; but as the class was distinctly one for dairy cows they no doubt did quite wrong, as their unfortunate explanation only goes to make this wrong the greater.

As we stated in our last, Mr. Thompson, the single-handed judge and his own veterinarian, passed Harwich Emperor at Downham, and Professor Varnell passed him again at Chelmsford, although the horse had previously been disqualified by some of the profession. He accordingly stood in again for the All-England Cup, over which award there was a deal of deliberation; but eventually Cup-bearer was once more proclaimed the winner, as he was at Braintree in 1867 and at Epping in 1866, Mr. Manning still clearly holding to his horse, who has gone on improving, and whose two "odd" forelegs did not show so conspicuously as they have done. Harwich Emperor, like his father before him, "seems" to be flat in his sides after work; and the third left in, Mr. Wilson's President, beat Cup-bearer for the Cup at Fakenham last year. They are three very good horses, and settled as the points of a Suffolk may be supposed to be, the three may as likely as not change about again the next time they meet, the more so as only one of the three judges at Chelmsford is a breeder of the sort. President won another All-England premium, in which neither Cup-bearer nor Emperor showed against him; his chief opponent being a two-year-old of Mr. Bott's, a very smart good-limbed colt, that was not only the best of the county two-year-old class, but first again against All-England of the same age, where he beat a very good class, many of the entries being Suffolks born and bred. Mr. Wolton's well-known Violet was the best All-England mare, and Major Wilson's three-year-old the best filly, and with these the excellence of the cart-horse section came to something like a full stop. For the cart stallions of the county there were two premiums and two entries, the first prize going to a dead lame one and only half a good one; the second with more propriety being withheld from an animal, that any man might have the misfortune to breed, but no one as we should have thought the temerity to buy. However, the Reverend R. A. Westhorp duly enters his horse as bred by Mr. Crisp, and Mr. Crisp is congratulated accordingly. The county cart mares were an indifferent lot; but Mr. Holmes' prize mare and foal were worthy of their place and price, 50 gs. for the lot. There was only one three-year-old filly, and she was a bad one; but we must make some exception for Mr. Bott's couple of two-year-old fillies, like his two-year-old colt by Chapion and both of very good quality. The yearlings were few and poor, and the foals in much the same category, the best being out of the prize mare. Almost all the cart-horses exhibited were Suffolks or Suffolk crosses, the majority of course chesnutes, with a few bays by way of variety; but beyond Mr. Bott's entries, the county of Essex had very little to do with the actual merit of this department. Indeed, if this limitation and disqualification after winning be only persevered in, the probable result will be that animals competent to win in Essex will be incompetent to win anywhere else.

The riding-horses were a deal better, and some very decided improvement is here discernible, no little of which is attributable to the desire of Sir Thomas Lennard to get and keep some good blood in the country. For years

past there has always been a thoroughbred stallion within the farmers' reach at Belhus; but Sir Thomas offers some further inducement, in the shape of premiums for stock by his horses. Mainstone now appears to be replaced by Amsterdam, a neater horse of very high quality, and with all the prestige of performance to recommend him. He was quite the hero of the day at Chelmsford, taking the premium in the county class against three or four very well-bred but odd looking horses, that as thoroughbred sires seem to have been turned to queer purposes. The excuse made for Whitmore, a West Australian horse, looking so bad, was that he had been driven about by his owner in a cart; while Port Royal by Yellow Jack was ready to be "jumped" as a hunter, and Camillus by Newcourt looked more like steeple-chasing than the stud. But the judges resolutely scorned from the first having anything to do with the "leaps" in front of the Grand Stand, either in the way of proving a sire or his stock, so that Amsterdam's looks and action secured him a very bloodless victory. In the All-England class the contest was closer, with four or five fresh animals in, such as the lumbering Abbot, the lucky Knight Templar, that has already won a prize in Essex; a Big Ben four-year-old of Captain Sparrow's, and another four-year-old from Hasketon, a stud that has taken so many All-England honours out of Essex into Suffolk. Still King of the Dale, despite his size, failed to accomplish so much, the premium again going to Amsterdam, to the very manifest satisfaction of the public, but in the ring the award was only arrived at on a division. Although a showy young horse, King of the Dale does not prove so well; he is high on his leg, has not the best of shoulders, is thrifty in the setting on of his head, and will have to fine and drop a bit before he can do better than he did at Chelmsford. In another open class for "stallions, thorough-bred or otherwise, calculated to get weight-carrying hunters," of course he won against such cattle as Pollard, not thorough-bred; Harkaway by Master Moody; Morgan Lightfoot, a machner, that took a prize in another class, although nobody knows what for; Young Kingston, beaten by Morgan Lightfoot, and that is saying something; and The Abbot, Port Royal, and Whitmore, over and over again. But Captain Barlow had his reward in other ways, for in the best class in the show, where everything was commended, much of the superiority was traceable to his stable. This was the lot of two-year-olds, in which Mr. Vickerman was first with a handsome, well-grown, very promising, thorough-bred filly by Ace of Clubs, and highly commended for another filly by Surplice; while another high commendation, and "the reserve" went to Captain Sparrow's filly by Ace of Clubs, for which the judges regretted they had not a second prize at their disposal. Some of the young Mainstones, both foals and yearlings, were full of promise; and the two prize brood-mares had foals at foot by this horse. Of the younger stock, the three-year-olds, on the contrary, were very indifferent, and there was nothing but the winner in it; while being without further condition, and open to hunting hackneys, or coaching colts or fillies these classes were made up of "all sorts," although the best bred one generally got it. A nisch level mare of Mr. Christy, that promises to go over a country, was the best four-year-old; but there was no standing against Mr. Barker's long string in the hunters of all ages. Barring another of Mr. Christy's he had not much to beat amongst the mares; while the steeplechase horse Tom Bowline was a deal too much of a workman at all points to give the geldings a chance, and he won the open prize almost as easily. Mr. Beadel's prize hack-mare and prize cob were both very good of their kind, the cob Jacob being a treasure for a "heavy-weight." Mr. Christy had also a very neat hack-mare, and Mr. Hicks a wonder-



fully clever dun pony, that for shape, style, and "carriage" was a long way ahead of his motley company.

There was a goodly array of implement stands, which, as somebody said, went to "make it look like little Royal;" but with neither trials, premiums, nor novelties our report would come chiefly to a list of exhibitors for the home and the adjoining county of Suffolk. The flower-show was said to be a success, as it certainly appeared to be well-attended; but there was not a crowded company at the dinner, where the chief topic amongst the M.P.'s of both sides was the new Foreign Cattle Market. Mr. Spooner, as the only one present, returned thanks for the judges, and in doing so took the opportunity of very fairly ridiculing the practice of "some other societies," where catalogues containing the merits of the animals and the names of the owners are placed in the judges' hands. The only society we know of, that adopts this plan, is the London Horse-show Society, while Mr. Spooner acted "in happy ignorance of all this," and, as it appeared was applauded, and not hooted.

## PRIZE LIST.

### JUDGES.

**CART HORSES.**—T. King, Preston Hall, Suffolk; J. Manning, Oringbury, Wellingborough; W. C. Spooner, Ealing House, Southampton.

**RIDING HORSES.**—H. Biddell, Playford, Suffolk; H. Corbet, Strand, London; H. Thurnall, Royston.

**CATTLE.**—W. H. Beauford, Bedford; G. Garne, Church-hill Heath, Chipping Norton; W. Ladds, Ellington, Kimbolton.

**SHEEP AND PIGS.**—M. Biddell, Playford; E. Little, Chippenham; B. Newton, Campfield, Woodstock.

**VETERINARY INSPECTOR.**—Professor Varnell, Beech House, Belton, Yarmouth.

### HORSES FOR AGRICULTURAL PURPOSES.

**Stallion.**—First prize, £20, G. D. Badham, Bulmer Tye, Sudbury (Great Eastern); second, £10, withheld: no merit.

**Entire two-year-old colt.**—First prize, £15, W. Bott, Broomfield (Champion); second, £7, G. D. Badham (Fitz Emperor); highly commended, R. G. Salmon, Clacton Hall (Major); commended, H. Croxton, Burnham (Young Boxer), and Marriage and Sons, Broomfield.

**Mare, not under four years.**—First prize, £8, A. B. Croxton, Burnham (Silver); second, £4, E. Catchpool, Feering Bury.

**Mare, four years and upwards (open to all England).**—Prize £10, S. Wolton, jun., Kesgrave (Violet); highly commended, A. B. Croxton (Silver); commended, F. M. Wilson, Stowlangtoft Hall, Bury.

**Mare, with foal at foot.**—First prize, £10, H. Holmes, Boeking; second, £5, W. Belcher, Sandon (Blossom).

**Cart filly, under four years.**—Prize, £10, F. M. Wilson; highly commended, F. M. Wilson; commended, S. Wolton, jun. (Matchett).

**Three-year-old filly.**—Prize, £5, T. Taylor, Earls Colne.

**Gelding.**—Prize, £5, G. Potter, Hoo Hall, Rivenhall.

**Two-year-old filly.**—First prize, £7, W. Bott; second, £4, W. Bott.

**Yearling colt.**—First prize, £5, J. Gibling, Little Bardfield; second, £3, G. Norfolk, Layer Marney.

**Yearling filly.**—First prize, £5, H. Foster, Totham; second prize withheld: no merit.

**Foal.**—First prize, £5, H. Holmes (out of prize mare); second, £3, T. Taylor; commended, W. Elphick.

**Plough horses.**—First prize, £7, G. F. Josing, Berners Roding (Gilbert, Diamond); second, £3, withheld.

**Stallion (open).**—Prize, £25, W. Wilson, Bayham Hall, Ipswich (President); highly commended, W. Bott (Champion).

**Stallion (open to all England).**—Prize, £20, T. Crisp, Badley (Cupbearer); highly commended, W. Wilson (President), and I. Rist, Tattingstone (Harwich Emperor); commended, C. Boby (Conqueror).

**Colt (open).**—Prize, £10, W. Bott (Champion); highly commended, W. Wilson and C. Boby (Captain).

### RIDING AND COACHING HORSES.

**Thoroughbred stallion.**—Prize, £15, Sir T. Barrett-Lennard, Belhus, Romford (Amsterdam).

**Stallion, not thoroughbred.**—Prize, £10, F. Butcher, Colne Engaine (Morgan Lightfoot).

**Hunting mare.**—Prize, £7, F. Barker, Ingatstone (Jessica).

**Hunting gelding.**—Prize, £7, F. Barker (Tom Bowline).

**Hunter (all England).**—Prize, £20, F. Barker (Tom Bowline); highly commended, B. Sparrow, and J. Grout (Turk); commended, J. Christy (Madonna).

**Hackney mare.**—First prize, £5, W. J. Beadel, Chelmsford (Duplicate); second, £3, J. Christy (The Nun).

**Hackney gelding.**—Prize, £5, P. O. Papillon, Lexden Manor.

**Mare or gelding, 4 yrs.**—Prize, £7, J. Christy, Roxwell (Madonna).

**Mare or gelding, 3 yrs.**—Prize, £7, G. D. Badham (Eclipse).

**Mare or gelding, 2 yrs.**—C. R. Vickerman, Thoby Priory, Brentwood (The Countess); highly commended, C. R. Vickerman (Crucifix), and B. Sparrow. The class commended.

**Mare and foal.**—First prize, £6, J. Cassidy; second, £3, G. Pool.

**Cob.**—Prize, £5, W. J. Beadel (Jacob); commended, Alfred Hockley, Hatfield Broad Oak, W. Lucking (Young Fireway), and Sir J. T. Tyrell, Bart., Boreham-house.

**Pony.**—First prize, £4, C. Hicks, jun., Stansted Mountfitchet (The Earl); second, £2, C. Barnard, Harlow.

**Half-bred yearling by Mainstone.**—Prize, £5, C. Sturgeon, South Ockendon-hall.

**Thorough-bred stallion (open to all England).**—Prize, £25, Sir T. Barrett-Lennard (Amsterdam).

**Stallion, thorough-bred or otherwise, to get hunters (open).**—Prize, £25, Captain F. Barlow (King of the Dale).

### CATTLE.

**Shorthorn bull.**—First prize, £15, J. Upton, Rivenhall (Sorcerer); second, £10, J. Piggot, Beckingham Hall (Grand Visier).

**Two-year-old bull.**—First prize, £10, A. P. Clear, Maldon (Monarch); second, £6, J. Chaplin, Ridgwell (Raven's Eye).

**Yearling bull.**—First prize, £10, Col. Brise, Spain's Hall (Whipper-in); second, £6, C. Sturgeon (Grand Signeur).

**Cow.**—First prize, £10, J. Upton (Violet 3rd); second, £6, J. A. Piggot (Daphne); highly commended, J. R. Chaplin (Iona).

**Heifer (two-years-old).**—First prize, £8, J. Upton (Rosebud); second, £5, J. R. Chaplin.

**Yearling heifer.**—First prize, £7, J. Christy, jun. (Patchouli 4th); second, £5, J. A. Piggot (Dagmar).

**Heifer, not exceeding 12 months old.**—First prize, £6, J. Christy, jun., Boynton Hall (Potentilla); second, £3, William Tippler, Roxwell (Ringlet).

**Bull, not exceeding 12 months old.**—First prize, £6, J. Christy, jun. (Duke of Babraham); second, £3, J. Hutey, Rivenhall.

**Shorthorn bull (open to all England).**—Prize, £20, J. Christy, jun., Boynton Hall (Duke of Grafton); highly commended, H. Aylmer, West Dereham Abbey, Norfolk (Thorndale Duke), and Lady Pigot, Branches Park, Newmarket (Charles Le Beau).

**Bull, cow, and calf (open to all England).**—£20, J. Christy, jun. (Duke of Grafton, Primula, and Potentilla).

### SHORTHORNS WITHOUT PEDIGREES.

**Cow.**—First prize, £8, W. Sworder, Stapleford (Tawney); second, £4, D. Christy, Patching Hall.

**Heifer, two years old.**—First prize, £5, J. Oxley Parker, Woodham Mortimer-place; second, £3, Colonel Brise, Spain's Hall, Braintree.

**Yearling heifer.**—First prize, £5, J. Giblin, Little Bardfield; second, £3, J. Oxley Parker.

**Heifer, not exceeding 12 months old.**—Prize, £3, J. Upton, Rivenhall.

### OTHER PURE BREEDS.

**Bull.**—Prize, £5, C. Hill, Harrow Lodge, Hornechurch.

**Bull, two years.**—No entry.

**Cow.**—Prize, £4, S. Hanbury, Wickham-place, Witham (Alderney).

**Heifer, two years old.**—Prize, £3, C. Hill (Quennie).

**Yearling heifer.**—Prize, £3, S. Courtall, Gosfield, (Alderney).

## DAIRY CATTLE.

Cow or heifer.—First prize, £8, J. Upson, Rivenhall (Lady Dacie End); second, £5, S. Young, jun., Roxwell (Shornhorn); highly commended, W. J. Beadel (Alderney).

## FAT CATTLE.

Ox or steer.—Prize, £5, J. S. Dennia, Maashbury Hall (Shorthorn).

Cow or heifer.—Prize £5, J. Perry, Bocking (cow).

## SHEEP.

Southdown ram of any age.—Prize £6, Lord Braybrooke, Andley End.

Short-wooled ram.—Prize £5, J. M. Green, Stradishall, Newmarket (blackfaced).

Cotswold ram.—First prize £5, J. Giblin, Lt. Bardfield; second £3, J. Giblin.

Long-wooled ram.—First prize £5, W. King, Woodham Ferris (Lincoln); second £3, W. King (Lincoln).

Oxfordshire or Shropshire ram.—First prize £5, J. Giblin (Oxford Down); second £3, J. Giblin (Oxford Down).

Shearling Southdown ram.—First prize £5, Lord Braybrooke; second £3, Lord Braybrooke.

Shearling shortwool ram (any other breed).—First prize £5.—J. M. Green (blackfaced); second £3, J. M. Green.

Shearling Oxfordshire or Shropshire ram.—First prize £5, J. Giblin; second £3, J. Giblin.

Shearling long-wooled ram.—First prize £5, J. Giblin; second £3, J. Giblin.

Shearling pure Down ewes.—First prize £6, Lord Braybrooke.

Shearling short-wooled ewes.—First prize £5, W. Sworder; second £3, P. Portway.

Shearling long-wooled ewes.—First prize £5, J. Giblin.

Ewes and lambs.—First prize £5.—J. Giblin (Cotswold); second £3, C. Sturgeon.

Fat shearling short-wooled wethers.—First prize £5, Lord Braybrooke; second £3, Lord Braybrooke.

Fat shearling cross-bred or long-wooled wethers.—No entry.

Long-wooled ram.—(Open to all England).—Prize £10, H. Aylmer, West Dereham Abbey (Norfolk Cotswold); commended, J. Giblin (Cotswold).

Short-wooled ram.—(Open to all England).—Prize £10, Lord Braybrooke (Southdown).

## PIGS.

Boar.—First prize £5, J. Pertwee, Boreham (small Suffolk); second £3, Wm. Thompson, jun., Thorpe (Essex).

Boar, not exceeding 12 months.—First prize £5, G. D. Badham (white); second £3, G. Griggs (Berkshire).

Sow in pig.—First prize £5, G. Griggs (Berkshire); second £3, C. Sturgeon (Berkshire).

Sow and pigs.—Prize £5, G. Griggs (Berkshire).

Three sow pigs.—First prize £5, J. Giblin; second £3, G. Griggs; commended, C. Sturgeon.

Boar, large breed.—(Open to all England).—Prize £10, Duckering and Sons, Northorpe, Kirton Lindsey (Victor).

Boar, small breed.—(Open to all England).—Prize £10, T. Crisp (small white); highly commended, Duckering and Sons (Comet).

Sow.—(Open to all England).—Prize £5, Duckering and Sons (Lily); highly commended, Duckering and Sons (Primrose).

## THE DINNER.

The dinner took place on the Thursday, but the attendance was not so large as usual. The President of the Society for the year, Sir C. C. SMITH, Bart., who occupied the chair, gave "Success to the Society." Their presence, he said, indicated the interest they took in the society, which had now been organized eleven years. At that time it was thought a bold experiment, but he thought he might say it had now lived down all mistrust and doubt, and an evidence of its validity was the extension of the meeting to two days. This might be a bold, but he considered it a very wise, step, and thought it would result in success. The president then congratulated the members upon the successful character of the meeting, upon the improvement in both the numbers and quality of the stock, and upon the general fact that the society was

making a gradual but certain progress. Implements also were well represented, and in these days, when the want of labour was so much felt upon farms, he thought they could not do better than encourage and acknowledge the merits of the machinery which was so efficient a substitute. He especially noticed the tube well, and recognized in that invention a great boon to the labouring man upon a farm; and with regard to the produce exhibited from Barking, he said they could but rejoice rather than frown at the advent of the odorous fluid which enabled cultivation to be brought to so high a state of perfection. In conclusion, he acknowledged the debt of gratitude that was due from those to the secretary of the society—(Hear, hear)—and all those who had assisted to promote the welfare of the society.

Mr. W. C. SPOONER, who returned thanks for the judges, said, in reference to the particular department in which he had acted that day, he was happy to say that, coming from a long distance, he was not aware of the ownership of a single animal that came before him, for the society very wisely did not do as he had heard some societies did—put into the judges' hands catalogues containing the merits of the animals and the names of the owners (laughter). In happy ignorance of all this, they were enabled to give their judgments impartially and to the best of their ability. On behalf of the judges, he congratulated the society upon their very excellent show, and the large number of animals exhibited. In the department in which he had been engaged—that of the cart-horses—there was a want of competition in two most important classes. One of these was the class of stallions, in which there were only two animals exhibited, and only one possessed any merit. In mares also there was a want of competition and a want of merit. He suggested to the committee whether, in order to remedy this state of things, they should not give some greater encouragement to exhibitors, and take away some of the present restrictions.

Sir THOMAS WESTERN, in responding for the County Members, said the show had an additional attraction for him, because of the past devastation caused by the cattle plague, and the present absence of that pestilence from the country. This subject reminded him of the Metropolitan Foreign Cattle Market Bill, upon which, he said, there would be a severe fight in the House of Commons. He was not prepared to say that it would be carried, but it was a very important measure for this country, and the exertions of all were needed to pass it. Many members connected with large towns were opposed to it, because they believed it would be the means of contracting the supply of meat; but that was not so—the only idea in the minds of the promoters of the Bill was protection to the home cattle against the re-introduction of the cattle plague. It would be brought forward in a few days, when he trusted it would have the support of every member of this county, and of the borough members also; and he hoped to be able, when they met again next year, to hear that the effects of the Bill had been such as they desired.

Mr. SELWIN-IBBETSON, in responding, also alluded to the subject of the Metropolitan Foreign Cattle Markets Bill, and said he himself felt very great interest in the subject, he having sat upon the Committee on the Bill for 25 days, during which time they had had a mass of evidence before them, and which had been sifted, not by the most impartial adversaries, but by men who used every possible device to defeat the measure. The Bill, notwithstanding, had gone to the House, not exactly, perhaps, as its friend could have wished; but till a very serviceable measure. When it came before the House he was satisfied that a large number of agricultural members of Ireland and Scotland, who did not sit on the same side of the House as himself, would give it their support. It was said by the opponents of the measure that it would diminish the supply of foreign meat; but every witness the Committee had before them told them that, though at first the restrictions of the measure might to a certain extent impede importation, the trade would almost immediately find its own level. The farmers throughout England, and certainly of Essex, ought to look upon this measure as one most important to their interests.

Lord EUSTACE CECIL said: With regard to the measure before Parliament which had been alluded to, he need not say that he thoroughly went with the two previous speakers in all that they had said. He hoped the Bill would be made to suit, if possible, all classes, but especially the agricultural community. Without going into several agricultural objects which had been be-

fore the House, and which, perhaps, might be considered semi-political, there was one exception to which he might allude, and that was a very old friend with whom he had lately had a great deal to do: he alluded to the Malt-tax. He read the other day that at a certain meeting, of a rather more political character than this, some one who uttered the well-known cry upon this subject was threatened to be turned out of the room. He had, therefore, an additional reason for asking for their indulgence in bringing this question before them, because he certainly had no desire that so rigorous a measure should be carried out as regarded himself—that he should be turned out of this room or elsewhere. As a member, however, of the Malt-tax Committee, he felt it was only right to report progress upon the question, because a great deal had been said in

Chambers of Agriculture and elsewhere of the dilatoriness of that Committee. The fact was that they had had a great many disadvantages to contend against: they had had a number of witnesses who had not given their evidence in the shortest way in the world, and their worthy Chairman—small blame to him—had thought fit to get married, and no one could grudge him his well-earned honeymoon. They, however, he thought, began to see the end of their discussions; and he sincerely hoped that their deliberations would be satisfactory to the public, and to the large agricultural class. Two things he had especially learned while on that Committee—one was that everybody was most anxious to get rid of the Malt-tax, and secondly, that no one would allow his own trade or profession to be agood one.

## THE BIRMINGHAM HORSE AND HOUND SHOW.

### IN BINGLEY HALL.

"Love me love my dog," is an old saying, that had it been started in these days there would most likely have been added "and give him a prize." This is equally applicable to the horse, and we know of no more unenviable post than a judge at a show; as for one he pleases there are ten non-contents. But this is a mere matter of arithmetic after all, the old sow and her pigs again, and more pigs than teats. If there is one more unenviable post than that of a judge it is the critic, who goes to the best of his ability as straight as the crow flies, for he may not only offend the exhibitors, but the judges as well. And why has Ginger turned that smile of honey that he was wont to greet us with into one as sour as verjuice, and growl as he passes, "His head arn't well set on, arn't it? And where, oh where is the hearty shake of that horny hand of old Whipcord as he looked in our eyes? we imagined to see if we had glass ones or a cataract forming—vanished. Yes. He has turned astronomer when we meet, and wants a martingale quite as much as that brute of his with the ewe-neck that we called a stargazer. Then there's Steel, because we said his horse bored, has taken to terrestrial studies or counting his toes; whilst Oily Gammon, who was always pointing out and dilating in the plaintive notes of Philomela on the points of Shapeless, thinking that he was persuading us that she was far superior to the prize-winner Perfection, has stopped his piping, and with ruffled feathers shifts and sides about, or turns tail as if he had been shot at, or borrowed two-and-six. "Love me love my dog!" never, if he be a savage deformity or your horse a shapeless brute. But for the love we bear you, here we are at our post with the indelible pencil. The hour is ten—and the scene laid in Bingley Hall—the centre being fitted up as a circus, with Lord Combermere and Mr. Cookson in the open as judges; when in there comes dancing a mealy cheanout, with light wavy mane and tail, which add to his foreign appearance. It is Umpire, the American, by Le Comte out of Alice Carneal, by Imp Sarpedon, and a fair performer on the turf in his time, having started for forty races, and won thirteen. But now, he figures for the first time in a new character, being sent by his noble owner, the Earl of Coventry, as a candidate for prizes given for thorough-bred stallions calculated to get weight-carrying hunters. And if "like gets like," or anything like it, a pretty lot of weight-carriers they would be. He stands fifteen-three, and is a light horse all over, with a neat head and neck, capital shoulders, good quarters and thighs; but he is flat-sided, and the most waspy, herring-gutted animal we have seen for some time, and the least likely-looking, as far as form goes, to get hunters. Besides this, his forelegs struck us as being twisted, small

at knee, and light of bone; though it is only fair to say, they have stood him well during his racing career. His groom told us he had some very good-looking stock; but surely his noble owner never dreamt of taking a prize with him, and we think must have merely sent him to show those who go for form "an exception to the rule." The next on the list is old Motley, by Touchstone, dam by Lanercost, both stayers in their day, looking as sound and as well as ever. He took the Royal Hundred at Plymouth, and now adds another first prize to his long score of victories. He has got some very handsome stock, and this year there are eighty young Motleys, fifty of them being colts. After Motley comes the neat-topped, handsome Ivanhoff by Muscovite, out of Blackbird by Irish Birdcatcher, and as good a looking horse as one may see in a day's march, cutting him off, as we have often said before, at his knees. He has a sweet temper, allowing, his owner told us, Miss Griffiths, a child of eight years, to take him out for a ride by herself. He and Motley serve half-breeds at five guineas, whilst Umpire goes for eight. The other competitor was a nag by Newminster, out of Marchioness D'Eu by Magpie, a big, deep-topped horse, with something hunting-like about him, but anything but a taking one on the whole, or a free mover. It was a small class, but just at this season the lights of the harem require great attention, which keeps many of the lamplighters at home. Though only four to seven last year, we consider the thorough-bred stallion class an improvement, for among the seven last year there were some whose owners would have done their country more service by handing them over to the slaughterman, a character we hope soon to see appointed by the Government, instead of sending them stalking about the country in search of mares to propagate their wretched misshapen frames and rotten constitutions. Now for the weight-carrying hunters; send them in. That's Mountain Dew, the Islington prize-horse, walking clean away from the second to him there, a horse called Tyreconnel, and though he has one of the Chifneys of the show-yard up, he cannot keep his toe out of the tan with those shoulders. Then this rather smart servant's horse at first sight, but who will bear looking into, is the stout-made, good limbed, ever going Freeney; a nice one, barring the shoulders, which surely have encroached too much on that shortest of necks. The fair topped bay, a size bigger than any of the others, and who has not improved since we last saw him, is Hobby Noble, from the same stable, and second prize horse in this class last year, beating Little John, the Islington prize weight-carrier—that dummy of a horse, Master of Arts, being put over both their heads, a gay

deceiver, who was not found out, although we charmed never so wisely, till he had stripped the country of prizes to which, for the purpose, he was as much entitled to as the "Trojan horse" would have been. We forgot to say before starting for Troy that Freney was the second hunter here last year, without conditions as to weight. This snaffle-bridle horse, flourishing his feet about in a peculiar manner, handsomer and more symmetrical than any of them down to the knees, which from thence do not improve on inspection is a horse that pleased us much at Islington, Sparkenhoe by name, and he comes in here also for empty honours. Then there are the well-made, short-legged Pilot from Kenilworth, and Tupaley, a neat stylish grey of Mr. Corbett's, of Evesham. Captain Heath's two, The Chicken and Brewer, want fashion and breed—in fact, are the sort of horses, looking at them as hunters, to make one imagine we have gone back at least a century, and expect every moment to see Squire Western and Tony Lumpkin pop in the ring and claim them. There was a brown with something of a charger look, not in the catalogue. Of the four others, we hope their owner's heads will not ache until they get a prize. In the hunters without condition as to weight The General was quite the "primur genitur boy" of the party in breed, carriage, and form. He has greatly thickened, and let down to his leg since last year: his arms are much bigger, and as he is now rising six we about see him in perfection. He looked better than at Islington in himself; but what gave him a grander look here than he really has, grand horse as he is, was the company he was in, for he had nothing like Lady Derwent by his side. "Comparisons are odious," but nevertheless capital things to judge by. Balance-in-hand, the second to The General, is compact, well-made, with a nicely drooped quarter, and a good mover. He belongs to Mr. Westley Richards, who goes more for the useful than the ornamental, with an eye to a capital stamp of horse; Pilot, another of his, a neat light horse, being commended. The third, Thelka is a useful hunting mare, with good shoulders and quarters. The others we thought good-looking were the hunting-like Lancee from Melton Mowbray, but who bears the irons on some curby hocks; The Dean, from Mr. Lynes' Northampton, and a brother of Rural Dean, sold to the Prince of Wales, is very neat; while the Hon. R. C. Hill's Beak is a cobby under-bred looking animal, whose merit was not in his looks. Mr. King's Carragh is a blood-like looking hunter coming from Leamington, and looked like going; and Mr. J. Gilman's, Birmingham—was worthy of being named. In the four-year-old colts and fillies Mr. Westley Richards was first and third with Tipperary and Shambally, the former being a long low horse, with good a quarters and big limbs, but a heavy head, which gave him a want of breed; he needed a dash more blood like Shambally, who though not so powerful or good stand-still horse, was more to our eye. Brigadier was looking better than at Islington, and having a deep frame, time will tell on it, a very safe and quite oracular opinion for any one to give. A half-sister of Rural Dean, the Prince's horse, was very neat; Mr. A. Harrison's Paddy Carey well made; Mr. W. Goodliff Stow's Father Mewrad good looking, with plenty of blood; and Mr. Meyrick, of Bush, Pembroke, sent a nice sort of cheanut, whose Parson as a gig-horse we shall never forget.

Roulette, by Oscar, the first of the two-year-olds last year, repeated his victory in an indifferent class of three-year-olds. He shows breed and character, but is nothing of a mover, and the man who led him either had very little notion of giving a show or no intention. He was at Thrak Yorkshire Show last year, in better society, and passed unnoticed. But the junior classes are never very

strong in Bingley Hall. Tippler, by Claret, though a trifle flat-sided, has plenty of depth, and is a fair-topped horse, with blood; but is wrong in his forelegs, and his hocks look none of the best. He appears to have been roughly handled, and is as poor as a rook. Thunder-an-Turf, an Irishman, as his name indicates, does not look like rivaling forked lightning in pace. He was purchased at Ballinasloe fair, and is remarkable for his old-fashioned look; while he belongs to the owner of the famous old hackney mare Crafty, and was attended by the companion of her victories, who has been in search of something like her, but has not yet met with the desired object. Mr. Lort's highly-commended cheanut was here last year; he has length with some blood, and a good head, but has not quite the shape of a hunter. Ethel by Idler out of Rural Dean's dam, from Preston Deanery, had something pleasing about her. In a poorer class of two-years-old Curaçoa has a hunting top, but not the best formed hocks, and he was shown in very poor condition; Britannia bearing a strong resemblance to her sister Mr. Booth's British Queen, a well known filly from Killerby Hall, is by Laughing Stock out of sister to British Yeoman, and at present rather high on the leg. The judges having disposed of the above, as the buck-jumper remarked when he parted with his rider, resigned office. They were about two hours and forty minutes selecting the winners, and throughout acted well their parts. They had none of the horses jumped. This carried us on till a quarter to one, when the routine of a show-yard was set aside for a few old rattle-traps to be run round the ring, or while hacks verging on the butcher were trotted, or some hopped over a hurdle.

To drag people away from their homes and business for such trifling is too bad, and several came miles to see the show, but like the young Jew who fell from the gallery into the pit, did not. Some did not arrive till one on Tuesday, and when they found what was going on went away never to return. Two days and a-half did we swelter in Bingley Hall; two days and a-half waiting to see 240 horses, which included a lot of tag-rag and bobtail, in the shape of ponies and hacks, out and judged in vain, for up to twelve on Thursday the agricultural and dray horses were not looked at. And we came away, as who would not? disgusted with the systematic spinning out and childish trifling. Is it to delude people in this manner that noblemen and gentlemen kindly consent to act as judges, lend their names to give a respectability to the thing, and send horses and hounds? Is it in this way that horse shows have gained the popularity and ascendancy they have throughout the country? And is this the way to keep them so? No. Go to Yorkshire, Mr. Manager, go! In the carriage horses, a neat pair of browns, who were second last year, now took first honours, the second being a well-matched, rather cobby, pair of browns, while the commended were a pair of roans, and, as is often the case in pairs, one much neater than the other. There was nothing very attractive, and we think, in a circle of the dimensions of Bingley, the carriages might be left out, and the horses stripped, as fine feathers make fine birds. There were some nice hacks in the class exceeding fifteen-two; the fight for the prize lying between Thorngumbald's Pride, a very useful cobby mare, with limbs well placed, and quick strong action, just smacking of a little tutoring, and Ladylike, a title she is quite entitled by her perfect manners, a very good-looking hack, an inch over fifteen, and who went with such ease and grace, bending the knee and getting it well away without an effort, that it was quite the poetry of motion. The judges hung a long time here, and appeared anything but unanimous, having the saddles removed and the pair run up and down, dealer fashion. Then Mr. Welby rode them

round, but we fancy did not gain much information during the short time he was up, as either the mouth had not become accustomed to the hand, or the hand to the mouth. However, it ended, to the surprise of many, by the prize going to *The Pride*—we leave out the other name, being such a fearful mouthful—a decision that, had we been judging, we would have stood out against till Christmas, provided we had had a good breakfast, and were just a trifle deeper in our back-ribs. The others we fancied in this class out of a dozen were Mr. Gilman's (Birmingham) *Lelia*, and Mr. Price's (Churchstoke, Salop) *Honesty*. Old *Crafty*, a famous hackney mare, with her constant companion up, who is known by her name quite as well, if not better, than he is by his own—*Mulcaster*—looked as well as ever, and carried off the prize in the weight-carrying roadsters, to the surprise of no one, we should think. The second to her was a clever useful hack; *Cheshire Phenomena*, a third-prize one at Islington, and the neat *Tommy* coming in for commendations. *Bantam*, a pony with a nice head and large prominent eye, showing great breed and character, though as fat as butter, and with a hollow back, and was still very worthy of his honours; *Piccadilly*, a smart little pony, and a prize-taker at all points of the compass, being a good second; but the commended one, *Zara*, a nice pony, has not the best shoulders for a saddle. Pretty *Se-ensan* is a high-stepping cobby lass with the prison crop, and *Tommy*, who for the moment we cannot bring before us. In the ladies' hacks a *brown* mare of Mr. Holmes's, described as a chesnut in the catalogue, without a name, is a very nice mare for a lady, with form and fashion, but her hind leg action called forth many remarks, going as she did very screwy. Between her and *Beauty*, a deep good-topped bay, and not badly named—she is by an Arabian of the King of Sweden—and for whom we should have again held out, the judges hung a long time before coming to a verdict. Mr. Turner's (Birmingham) *Lady Jane*, Mr. Casson's *Gipsy*, and Mr. C. Richards's blood hack were the next we fancied.

In the ladies' horses under fifteen, a mare entered in the hacks and roadsters exceeding 15 hands, called *Bonny Lass*, and who we were told was disqualified as to height, was allowed very improperly to compete. She is a very handsome mare, with loaded shoulder points, and had the first prize awarded to her, when some one objected, and the prize went to the second and commended, but not before Mr. C. Richards was called in as referee, who went for *Duchess*, a nice-shouldered mare, with a hollow back, and who moved better than *Polly*, her opponent, a finer-made mare, barring her shoulders, which were nothing like so good. Mr. Thornley's *Bayard* exhibited a very neat one for a lady. The harness horses were anything but a grand lot, barring the winner, *Kate*, who is a finished mare with stylish action, and the second a neatish bay. In the ponies 13½ hands *The Duchess* was waited on by John Brown and several fine goers, among them *Leybourne*, a Birmingham trotter, and second-prize taker last year. Still we believe to be seen alive, as stated by the local papers, as "the winner of the exciting trotting match at Islington." Exciting! we should rather think it was, at the "turn of the tubs," where you expected some one to come over neck and crop every time, in a space more adapted for spinning a tectotum than to let a trotter out at top speed. Trotting match—bosh! *Multum-in-parvo*, a pony under 13½, and a really nice one, of whom we gave a description in our Islington Show, where he was first, had several good-looking ones to keep him company; while the lengthy *Bobby*, a prize-taker here, and this time of a silver medal, had only two others against him, as the best entire pony. *Alice*, the piebald pony that the Princess of Wales admired so much at Islington, and bred by Mr. Drake, the late Master of the Bicester Hounds, was picked out as the best child's pony.

And so she is, if any one has got a large family and wants them dispersed; as such she would prove invaluable, for there is no telling where she would send them flying or take them to. She is an inch under 12 hands, very well made, and looks all over like going; but is the most unruly, self-willed, boring, plunging little vixen we have seen in a small compass for some time; reminding us of some of the racing ponies of our youth, who would unsettle a monkey strapped on, if not let out for a spin. Surely Messrs. Welby and Topham must be as fond of little ones as the swell in difficulties, who told the bootmaker when he informed him that "he had taken the liberty of bringing his 'little bill,'" to "take him out of his sight, for he hated the sight of children!" There were four pairs of good-looking dray horses, those that struck us as the best being Mr. C. Brierly's *Prince* and *Boxer*, the former being a great framed horse, with a capital forehead on a short leg, and the latter with a remarkably good head, and movement as light as a pony. They were second at Manchester last year to an extraordinary pair, but have wonderfully improved since. The two of Mr. Evans, of Birmingham, were also greys; *Charley*, the old horse, being a rare shaped one, with great depth of middle, short-legged, and active looking, but begins to show age and signs of work; *Dick*, his companion, a five-year-old, is also very good, but has not the character of the old one. The Midland Railway was represented by a pair of very handsome blacks, of great weight, but not a match; and Mr. Brown, of Handsworth, with two useful ones, a grey and bay. There were four agricultural stallions: A 1, bred in Bucks, a plain headed animal, coming for the blue ribbon, as he did last year, and afterwards at the Gloucestershire and Warwickshire meetings. *Tom Sayers*, who, from the glance we could get of him in his box, was rather common looking; and *Young Sampson*, of Burnley, Lancashire, the other competitor, and a winner of a necklace of local prizes was sent empty away. The agricultural pairs had a prize for each. Among them was a mare called *Dumpling*, a lengthy, low, well made mare, who has taken a second prize two years in succession, and now comes in for a first.

The hounds were judged on some planks in the circle; and the eccentric attitudes and knowing way the three old huntmen, famous in story, went to work seemed to please the ladies quite as much as an exhibition of *Punch* and *Judy*. First *Jack Walker* would put his head on one side in the most comical position, and have a half-doubting look at a hound; but as that wouldn't do, he turned it to the other for a squint. But when *Will Long* began to tape them round the middle, arms, ankles, and divers other parts, the approving smile Mr. Walker gave him, as much as to say, "William, you are a doing of it," and when 'Arry Ayris put on his specs for a stare, is beyond all description. The ladies were in ecstasies, some putting their pocket-handkerchiefs to their lips to prevent them from shrieking outright.

#### PRIZE LIST.

JUDGES.—Viscount Combermere.

Mr. J. Cookson, Neasham Hall, Darlington.

#### STALLIONS.

Thorough-bred stallions for getting weight-carrying hunters.—First prize of £30 to Mr. J. Casson, *Burgh-by-Sands*, Carlisle (Motley); second of £10 to Mr. E. Griffiths, *Marle Hill*, Cheltenham (Ivanhoff).

#### HUNTERS.

Five years old and upwards, equal to 15 stone.—First prize of £35 to Captain E. N. Heygate, *Buckland*, Loomister (Mountain Dew); second of £10 to Mr. Westley Richards, *Birmingham* (Kreeney); third of £5 to Captain Fyler, *Wareham*, Dorset (Tyronnel). Highly commended: Mr. Henry Allsopp, *Hindlip Hall*, Worcester.

Five years old and upwards, without condition as to weight.—First prize of £25 to Mr. G. Holmes, Beverley (The General); second of £10 to Mr. W. Richards, Birmingham (Balance-in-Hand); third of £5 to Mr. George Van Wart, Edgbaston, Birmingham (Honeydew). Commended: Mr. W. Richards (Pilot); the Hon. R. C. Hill, Hawkestone, Shrewsbury (Becka).

Four-year-old colts or fillies.—First prize of £20 to Mr. Westley Richards, Birmingham (Tipperary); second of £10 to Mr. J. B. Booth, Killerby Hall, Catterick (Brigadier); third of £5, to Mr. W. Richards (Shanbally). Highly commended: Mr. W. Goodliff, Stow, Weedon (Father Mewrad). Commended: Mr. T. Meyrick, Bush House, Pembroke (chestnut filly).

Three-year-old colts or fillies.—First prize of £20 to Mr. G. Wise, Woodcote, Warwick (Boulette); second of £10 to Mr. Westley Richards, Birmingham (Tippler); third of £5 to Mr. H. J. Percy, Howsenrigg, Aspatria, Cumberland (Tander-an-Turf). Highly commended: Mr. W. Lort, The Cotteridge, King's Norton (chestnut). Commended: Mr. G. McKnight, Oakengates Salop (Maggie).

Two-year-old colts or fillies for hunting purposes.—First prize of £15 to Captain E. N. Heygate, Backland, Leominster (Curagoa); second of £10 to Mr. J. W. Gardom, Butterton Park, Newcastle (Britannia); third of £5 to Mr. Robert Emerson, Darlington (Lillie). Highly commended: Mr. James Hughes, Broome, near Alcester (chestnut filly); Commended: Mr. Wm. Boddington, Liddington, Stratford-upon-Avon (bay colt).

#### CARRIAGE HORSES.

JUDGES.—Mr. J. C. Welby, London.

Mr. J. Topham, Welford, Rugby.

Pairs.—First prize of £20 to Mr. C. J. Shaw, Harborne Road, Birmingham (Shakespeare and Greenfield); second of £10 to Mr. Smith, Birmingham. Commended: Mr. James Oldham, King's Heath (Strawberry); Mr. J. Oldham, Leamington (Jessie).

#### HACKS, ROADSTERS, AND COBS.

Hacks and roadsters exceeding 15 hands high.—First prize of £15 to Mr. J. H. Dennis, Burstock, Holderness (Thorn-gumbald's Pride); second £5 to Mr. J. Sankey, Birmingham (Ladylike).

Weight-carrying hacks, from 14 to 15 hands high.—First prize of £15 to Mr. H. Percy, Aspatria, Cumberland (Crafty); second of £5 to Mr. T. Smith, Wootton Downs, Woodstock (Jenny Jones). Commended: Captain St. Clair Ford, Cheltenham (Cheshire Phenomenon); Mr. J. Gilman, Birmingham (Tommy).

Cobs under 14 hands high.—First prize of £15 to Mr. R. H. Watson, Wigton, Cumberland (Bantam); second of £5 to Captain F. Barlow, Castle Donington, Derby (Piccadilly). Commended: Mr. F. Pearoe, Steeple Acton, Oxon (Zara); C. Groucock, Stanfield Hall, Wymondham (Pretty Seamusan).

#### LADIES' HORSES.

15 hands high and upwards.—First prize of £15 to Mr. G. Holmes, Beverley (brown mare); second of £5 to Mr. J. S. Keep, Park Road, Edgbaston (Beauty).

Under 15 hands high.—First prize of £15 to Mrs. Webb, Edgbaston (Duchess); second of £5 to Mr. J. W. Shaw, Moseley (Polly). Commended: Mr. Thornley, Yardley, Birmingham (Bayard).

#### HARNESS HORSES AND PONIES.

Exceeding 15 hands high.—First prize of £15 to Mr. J. S. Keep, Edgbaston, Birmingham (Kate); second of £5 to Mr. C. L. Boyce, Balsall Heath, Birmingham. Highly commended: Mr. A. Cooper, King's Heath (chestnut).

From 13½ to 15 hands high.—First prize of £15 to Mr. T. Worthington, Litchurch Villa, Derby (Duchess); second of £5 to Mr. H. Davis, Great Hampton Street, Birmingham (John Brown). Commended: Mr. J. Bate, King's Heath.

Ponies in harness under 13½ hands high.—First prize of £10 to Mr. J. Gilman, jun., Lancaster Street, Birmingham (Maltum in Parvo); second of £5 to Mrs. H. Chavasse, Soho Park, Handsworth (Kitty).

#### PONIES.

Under 13 hands high.—First prize of £10 to Mr. C. John-

son, Park Road, Birmingham (Fan); second of £5 to Mr. D. Hedges, Bull Ring (Oxford Joe). Commended: Mr. F. Haines, Bromford Villa, Ealing (Princess). Commended: Messrs. Johnson, North Lindsey, Warwick (Tommy).

Under 12 hands high, to carry children.—First prize of £10 to Mr. C. Thomas, Banbury (Alice); second of £5 to Mr. J. Lane, Bristol Road, Birmingham (Black Prince).

#### STALLIONS.

Not under 14 hands high, for getting hacks or roadsters.—First prize of £15 to Captain Barlow, Castle Donington (Lucifer); second of £5 to Mr. J. Edwards, Sudbury Paddocks, Middlesex (Shepherd F. Knapp).

Ponies.—Silver medal to the Most Noble the Marchioness of Hastings (Bobby).

#### DRAY HORSES.

Pair of horses (geldings or mares) four years old and upwards.—First prize of £15 to Mr. C. W. Brierly, Middleton, Manchester (Boxer and Prince); second of £10 to The Midland Railway Company (Blacks).

#### AGRICULTURAL HORSES.

JUDGES.—Mr. J. E. Bennett, Bosworth Grange, Rugby.

Mr. C. Randall, Evesham.

Mr. Shepherd, Coleshill.

Stallions.—First prize of £30 to Mr. W. Wynn, Alcester Redditch (A 1); second of £10 to Mr. P. Leather, Warrington (Tom Sayers).

Pairs of geldings or mares.—First of £15 to Mr. S. Davis, Woolashill, Pershore (Dumpling and Darby); second of £10 to Mr. C. Brierley, Middleton, Manchester.

#### FOXHOUNDS.

JUDGES.—H. Ayris, W. Long, and J. Walker.

For two couple of dogs.—First prize of £15, and £3 to the huntsman, to Mr. Oswald Milne (The North Warwickshire), Saffron, Guider, Hunter, and Prodgal; the second of £10, and £2 to the huntsman, to The Earl of Yarborough (The Brocklesby), Bluecap, Villager, Gaylad, and Castor; third of £5, and £1 to the huntsman, to Lord Fitzhardinge (The Berkeley), Pomfret, Dissolute, Rubens, and Premier.

Two couples of bitches.—First prize of £15, and £3 to the huntsman, to Lord Yarborough (The Brocklesby), Graceful, Reckless, Gaiety, and Niobe; the second of £10 to Mr. Oswald Milne (North Warwickshire), Boxy, Nancy, Rally, and Damsel; third, Lord Fitzhardinge (The Berkeley), Truelove, Languish, Petulant, and Paleface.

Couples of unentered puppies, one of each sex.—First prize of £10, and £3 to the huntsman, to Mr. C. Colmore (The Cotswold), Render and Ruin; the second of £5, and £1 to the huntsman, to Lord Yarborough (The Brocklesby), Ben-tinck and Handsome.

**A TROPICAL FOREST.**—The general aspect of one tropical forest is much the same as another, varied occasionally by a vegetation discovered only on nearer inspection as more peculiarly its own. Nothing can exceed their beauty. A rank luxuriance, a wild unrebuked race of vegetable giants, the tangled festoons of creepers starred with the most brilliant flowers, hanging down like stringed jewels; then the great big orchids. How one smiles afterwards at the pigmy specimens of artificial hothouse culture! One very frequent is like a huge bird's nest—the name in fact of the species—embedded in the forks of the largest trees; yards and yards of "lianes" are frequently suspended on the gnarled distorted limbs above and about it; such is a faint idea of the picture presented right and left as one breaks one's way through the heart of a primeval forest in the tropics. If you look down there are green depths as it would seem bottomless; if you look up there is roof upon roof of an exquisitely variegated verdure, the tall fern-tree piercing through the under and densely-tangled vegetation with its umbrella-shaped head waving like a coronet of feathers. At times you see the ghastly bared shape of some tempest-stricken child of the woods stretching across as if to hide its nakedness among the surrounding millions of leafy things. The hope of giving any adequate idea of the witchery of a scene like this is vain.—*Boyle's Mauritius Sketches.*

## HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.

The stated half-yearly general meeting was held in Edinburgh on Wednesday, June 24; the Duke of Buccleuch and Queensberry, president of the Society, in the chair.

Mr. F. N. MENZIES, the secretary, read the names of the new members, 104 in number, who were balloted for and duly admitted.

The CHAIRMAN said he had now to report to the meeting that an answer had been received to the address from this Society to the Queen on the occasion of the atrocious attempt on the life of the Duke of Edinburgh. The Duke of Montrose was still in charge of the address to the Duke of Edinburgh until he had an opportunity of presenting it to His Royal Highness on his arrival in this country.

Mr. WALKER, of Bowland, said it would be in the recollection of the members of the Society that at the last general meeting of the Society it was agreed to give a sum of £150 for ten years towards the endowment of the Chair of Agriculture in the University of Edinburgh, or rather to assist in providing a salary for the Professor of that Chair. The grant was given on condition that Government should contribute an equal or greater sum for that purpose. He had now to report that the directors made the necessary application to the Government, and he had the satisfaction to state that a reply had been received to the effect that the Lords Commissioners of the Treasury were pleased to place on the estimates of 1868 the sum of £150 for that purpose. He had also to state that the University had fulfilled their pledge in order to make the Chair more useful than it had hitherto been, by instituting degrees in agriculture, the examination in which is to be conducted by the University examiners in conjunction with an examiner appointed by this Society.

The report was adopted.

The Secretary reported that the arrangements for the show at Aberdeen, on the 28th, 29th, and 30th July, were in a satisfactory state of advancement, and that there was every promise of a most successful meeting. Nearly 1,200 head of stock have been entered for competition, besides upwards of 460 head of poultry, and a very large number of implements, as well as general collections of seeds and roots, and conifers, and other forest trees.

Professor BALFOUR reported that at a meeting of the Council on Education, held on the 18th March, the Society's Diploma in Agriculture had been conferred on Mr. Thomas John Elliot, Wilton, Salisbury; and the certificate on Mr. James Taylor, Allan Vale, Pitmuir, Aberdeenshire. He also stated that the prizes of £6 and £4, annually allowed by the Society to the students in the Agricultural class in the Edinburgh University who pass the best and second best examination, had this year been awarded to—1st, G. R. Glendinning, Mid-Lothian; 2nd, G. G. Bursby, Northumberland. The Professor concluded by reporting that at the recent examinations by the Royal Agricultural Society of England the principal prizes were gained by students in the class of Agriculture in the Edinburgh University, and that every one of the Edinburgh agricultural candidates took a first prize. There were twelve candidates, of whom six obtained prizes; and out of the six prizemen four were Edinburgh men, three of them having already obtained the diplomas of the Highland Society.

The report was approved of.

Mr. CAMPBELL SWINTON, of Kimmerghams, gave in the following report of examinations of the Veterinary College: "The examination of the students for the Society's Veterinary Diploma took place on the 15th and 16th April, and were conducted by four separate boards. Thirty-two students presented themselves, and, after a careful and searching examination, the Society's diploma or certificate was conferred on twenty-nine. Six silver medals were awarded by the Society for the best examination, as follows: 1. Anatomy—Andrew Spreull, Milngavie; 2. Chemistry—Frederick W. Going, Mullenahone; 3. Horse Pathology—Jonathan Bunnell, Liverpool; 4. Materia Medica—Joseph L. Faulkner, Wetherby; 5. Physiology—Andrew Spreull, Milngavie; 6. Best General Examination—George Lawson, Aberdeenshire."

The report was approved of.

Mr. CAMPBELL SWINTON said he had to report upon another matter connected with veterinary science, in regard to which, he was sorry to say, that they had hitherto met with ill-success—he referred to the effort which had been made to obtain a charter for a General Royal Veterinary College in Scotland. The members were aware that, in conjunction with the Lord Provost and magistrates of Edinburgh, acting as trustees of the Dick College, and also acting in conjunction with other public bodies in that city and elsewhere, and with a large number of the veterinary surgeons in Scotland, they had made an application to Government asking them to institute a Royal Veterinary College, not connected specially with Edinburgh, but to hold the same position which the Veterinary College in England did, and to give diplomas, degrees, and certificates to students attending any veterinary establishment where suitable education was given. He was sorry to say that hitherto their efforts had not been attended with success. The last letter which had been received from the Board of Trade on the subject, which was addressed to their London agent, was dated May 15, and was as follows:

Council Office, May 15, 1868.

SIR,—I am directed by the Lords of the Council to inform you that their lordships have had under their consideration the petition lodged by you at this office on behalf of the Highland and Agricultural Society of Scotland, and of the trustees of the late Professor Dick, praying for the grant of a charter of incorporation to the Royal Veterinary College of Scotland, and I am to state that their lordships, after mature deliberation, find themselves unable to recommend her Majesty to grant the charter prayed for.—I am, &c.,

(Signed) ARTHUR HELPS.

John Graham, Esq., 3, Westminster-street.

That answer evidently proceeded on a misapprehension, because it refused a prayer for a charter of incorporation to the Royal Veterinary College in Scotland, while there was no such body in Scotland. They seemed to be confounding the College, the establishment of which they asked for, with the school of veterinary medicine which existed in Edinburgh. He hoped, therefore, they might still hold out some expectation that when that mistake was properly explained their just demands in that matter for Scotland would receive greater consideration from the authorities in England than they had hitherto met with. Probably the society would be willing to remit the matter to the directors, knowing as they did what zealous friends they had in their noble president and in members of both Houses of Parliament, who were anxious still to take that matter up and press it on the attention of the Government.

The Duke of BUCCLEUCH said that the letter which had just been read by Mr. Swinton showed that there must be some misapprehension of the object of the Society in asking for this charter. No reason had been assigned for the refusal, and he thought they had therefore a very good right to press the matter still further, and ascertain really what was the objection to granting a charter to a veterinary college in Scotland. He knew, from what he heard last year, that there was an excessive amount of jealousy in certain quarters against the establishment of a veterinary college in Scotland. They had an idea that a veterinary college in England was the only one that ought to be supported, and that every person must go to London to get his diploma. He would like to know how they would have been if there had been no Royal College of Surgeons or Physicians in Scotland. He was not one who felt at all inclined to yield to pressure of that sort; and when he went to London he would make it his duty to endeavour to ascertain the grounds upon which this refusal was based, and, if possible, to procure the publication of any documents upon the subject, by moving for all the correspondence which had taken place between the Board of Trade and that Society, and all other public bodies, upon the subject. He thought they should still press it strongly upon the attention of the Board of Trade.



Mr. IRVINE, of Drum, laid on the table No. III. of the fourth series of the *Transactions*, and then read the list of premiums awarded for reports as follows:—

The gold medal, or £10, to James Purves, Lochend, Thurso, for a report of the improvement of seventy-five acres of meadow pasture, by relieving it from injurious flooding, executed in 1864 and 1865, on the Leens of Torran, part of the Crown lands and grazings of Dorrery, in the county of Caithness.

The medium gold medal, or £5, to John Honeyman, Crosby, Isle of Man, for a report on the Isle of Man—its agriculture, climate, &c.

The silver medal, to H. Newby Fraser, Wyseby Hill, Ecclefechan, for a report on the agriculture of Dumfriesshire.

The silver medal, to William Gilchrist, forester, Midmar Castle, Echt, Aberdeenshire, for a report on the formation and management of young plantations.

The silver medal, to Robert Hutchison, of Carlowrie, Kirkliston, for a report on trees not liable to be destroyed by rabbits.

The silver medal, to John Morrison, Coney-park Nursery, Stirling, for a report on the Cornican fir.

Dr. ANDERSON reported that the laboratory work had been very arduous during the last half-year. The number of analyses had very materially exceeded that of any previous half-year, and the results which had been obtained from them were in many respects extremely important to the agriculturist. This year the number of inferior manures in the market was very considerable, and these were very often sold under names to which they were not entitled. In some instances, manure said to consist of dissolved bones was almost entirely formed of coprolites and other mineral matters, and in many cases these manures were sold at prices nearly double their intrinsic value. He had also had occasion to examine a very large number of oilcakes, and here adulteration was carried on to an extraordinary extent. Although it was a mere guess on his part, he would say that there were thousands of tons of oilcake sold in Scotland during the past six months, mixed with bran, cottonseed, and other substances. In one case, the adulteration went so far that he might almost say that the justification for the name of linseedcake lay only in this, that a little of that material had been put among the other substances. These adulterations were done so artistically that they deceived the eye, and the article appeared to be the genuine oilcake; so that, unless care was taken, the adulterations might escape notice. The whole of the field experiments had been arranged for this season. Certain of the experiments of last year were to be repeated, while a series of other experiments on a large scale had been commenced. The manures were to be of the kinds most commonly used—such as farmyard manure, Peruvian guano, and so forth. He thought that the result of these experiments would be of great importance to the farmer.

Mr. HARVEY, Whittinghame Mains, said he still thought, as he thought a few years ago, that there should be a chemical department in Edinburgh. Glasgow was renowned for commerce, but not for agriculture. The eastern part of Scotland had by far a greater interest in agriculture than the west; and he thought that the present arrangement was very inconvenient for the farmers in this district. With regard to the adulterations mentioned by Dr. Anderson, he wished to know whether something could not be done to check such a system by advertising the firms who sold adulterated material. He knew there was a difficulty in regard to pouncing upon firms selling adulterated manure, but it was a system by which the farmers suffered very greatly, and it ought to be inquired into. He thought that the chemical department of the Society was not in that satisfactory position that the farmers of Scotland were entitled to expect. He was of opinion that they ought to have a model farm connected with the Society, as there was nothing like seeing practical work. He had no great faith in farmers carrying out these experiments, as they were often transferred to a substitute. He would mention a case in point. Two most respectable farmers in the county of Roxburgh on a recent occasion undertook the experiments, and what was the result? A drain had burst in both experiments, and no practical result was arrived at. A model farm, in his opinion, came nearer the mark, as in that case a person would be appointed of undoubted integrity to see that every pound and ounce of the produce raised would be weighed thoroughly

out, and a greater power and a greater force would be connected with these experiments. He was aware that there was some difficulty with an experimental farm—it would cost money; at the same time, to gain the confidence of the farmers of Scotland, perhaps it would be the best plan that could be devised.

Dr. ANDERSON said that it was true, as Mr. Harvey had stated, that the greater part of the analyses came from the eastern districts of Scotland. He very much feared that in some parts of the West, agriculture was not so much advanced as to induce the farmers to take advantage of what the railways could do. The best mode of putting a stop to adulteration was a question of very great difficulty. He feared that it would be rather a dangerous proceeding to venture upon, advertising the names of adulterating dealers; at least, if such a thing were done, he certainly hoped the Society would take any responsibility in the matter off his shoulders. As far as model farms were concerned, there was no doubt that a great deal of important information could be got from such farms if they could be got up. The difficulty in that matter was chiefly a pecuniary one. A model farm could not be carried on at a profit; it had been invariably found that such a farm must be carried on at a loss; and the whole question would be how to obtain the pecuniary means to carry on such a farm, which would certainly not be small, when it was taken into account that the researches of Mr. Lawes cost him £2,000 a year. These were experiments, no doubt, on an extensive scale; but that gave some idea of the cost of these experiments, and Mr. Lawes certainly carried on his experiments in a very economical manner.

Mr. MILNE-HOME said that, in regard to the suggestion of a model farm, that matter was brought before the directors at one time by the late Mr. Finnie, of Swanston, and a part of Linlithgowshire was suggested as a place where a model farm could be obtained. At that time Professor Low was in the Chair of Agriculture, and gave his assistance to the directors in considering the matter; and the result of the deliberations of the directors was that a very large sum would be required to pay the rent and expenses of a model farm, because it would be conducted upon principles totally different from those upon which ordinary farms were carried on; because, while farmers only grew those crops which had been ascertained to yield a profit, the object of a model farm would be to try unknown experiments, which in nine cases out of ten would result in failure and a large expenditure. Unless, therefore, the Society was prepared to set apart a considerable sum, the idea of starting a model farm was Utopian; but he did not see why the well-managed farms in East-Lothian might not afford the same facilities for field experiments which a model farm could afford. If some of those gentlemen so intelligent in agriculture were to allow a small portion of their land to be used for well-conducted experiments, the same results might be secured as by a model farm at far less expense. Considering the great importance of agriculture in the east of Scotland, he thought there ought to be some establishment connected with chemistry in Edinburgh as well as Glasgow, and perhaps Professor Anderson and the directors might be able to make some arrangements to meet the views of Mr. Harvey in that matter. Considering the importance of East-Lothian, he thought there ought to be some chemical establishment nearer them than in Glasgow.

Dr. ANDERSON said that Mr. Milne-Home's suggestion in regard to certain farmers setting aside part of their land and making experiments was being carried on. The field experiments were being carried on by some of the most distinguished agriculturists, and they were carried on in a very admirable footing. The gentleman have been selected as those experienced in such matters. With regard to Mr. Harvey's remarks as to the chemical department, he (Dr. Anderson) made a proposal at the time he went to Glasgow that a certain part of the work of the Highland Society should be done in Edinburgh, but the directors thought it was entirely unnecessary, and that the work would be better consolidated in one place.

The CHAIRMAN said as to the proposal to have a model farm, his idea was that, for such a thing to be of real utility, they would require not one model farm, but half-a-dozen. He thought that the experiments were not so necessary on fine, rich, deep loam and soil, but they ought rather to be made on clay and cold lands, and where there was a bad climate. It

was on farms situated on such districts that, in his opinion, they required to make the experiments. It was not always the best land that was the best to make experiments upon. He saw the peculiar difficulties of having a model farm. After one was erected, there might be a proposal to establish others in different parts of the country, which would cause great expense to the Society. Most of the proprietors of Scotland had got farms of their own which they did not always find to be very profitable, and he would suggest that it would only be a little additional loss if they were to make a few such experiments as were desired.

Mr. HARVEY said his idea was that they should have a model farm in a central part of the country. He did not like the experiments of farmers themselves, as they were often very carelessly conducted. They had spent a great deal of money

on the chemical department, and he did not think it had been worth ten straws to them. With a model farm, they would have ocular demonstration of what might be accomplished. Mr. Harvey further stated that he never for a moment thought of proposing that a model farm should be established about Dunbar, or within three or four miles of Edinburgh, where abundance of manure could be supplied, but in a central district of Scotland—perhaps in some district between the eastern and western oceans, and land not naturally in a high condition, where all manure supplied shows itself more minutely; then there would be something like data to work upon. These were his opinions, and he was fortified in them by present and ex-directors of the Society.

A vote of thanks having been given to the Duke of Buccleuch for presiding, the meeting separated.

## THE CAMBRIDGESHIRE AND ISLE OF ELY AGRICULTURAL SOCIETY.

### MEETING AT NEWMARKET.

The Cambridgeshire is not a Society of much calibre, its operation apparently extending but occasionally beyond the confines of the county into Essex, Norfolk, and Suffolk. Neither does the aim look like a very high one, the prize-sheet being cut up into a number of petty premiums and a multiplicity of classes—animals of the same sort or age entered or winning in one not being eligible to compete in another, until every man gets something in turn. This is no doubt all pleasant enough; but it is not the way to make an impression, or to develop a show of much character. Let the money subscribed by the districts visited be thrown into the general classes, and the premiums proportionately increased, so that we shall hear no longer of such parish offerings as £4 for a best bull and £2 for a second. The Society would seem to possess the chief elements of success; but its conduct calls for careful revision and greater scope. The system of keeping the thing down, and of neighbours rewarding each other, is pretty certain to come to grief, as it has done in Essex; while so far as any example or lesson be concerned, we can learn but little by staying at home.

The Newmarket meeting was, nevertheless, a creditable one; although, as it strikes us, it might have been better had its forces been concentrated instead of scattered. There was something wearisome alike to judges and spectators in encountering an infinite succession and repetition that went often enough to make a distinction without a difference, and this was more especially the case in the horse section. The cattle, or more properly the Shorthorns, did not either for numbers or merits equal the display at Wisbeach last year, although amongst the more prominent prize-takers were Lady Pigot, Mr. Pawlett, Mr. Hugh Aylmer, and Mr. How, of Broughton. But her Ladyship's two bulls look to have had quite enough of it, and Charles le Beau, more particularly, although placed first in his class, was terribly faded and cut up by his travels; as he of course shows this the more from being at best but a delicate animal. Rosolio, and Mr. Aylmer's General Hopewell young bull were entered in different classes at Downham, the West Dereham being then third in the old class. He is not a bull of much appearance, and had Lady Pigot's been fresher he might have reversed the decision. Young stock, however, above all others, cannot stand such incessant excitement, and any chance the Branches herd might have had for Leicester would threaten to be destroyed. The judges noticed nothing further amongst the yearlings, but beyond Mr. Pawlett's second prize for his round, thick Baron Warlaby, they highly commended a Thorndale Grand Duke of Mr.

Aylmer's in the older class. The bull calves, where Lord Braybrooke was first with one not noticed at Chelmsford, and Mr. Frere of Roydon second, were both very moderate; and in a short class of cows Mr. How's Jolly Queen, the second at Downham, had it all her own way, Jennings the trainer being a bad second. There was nothing very particular, again, about Mr. Frere's or Mr. E. Durrant's first and second two-year-old heifers; but Mr. How's Lady Anne, the best yearling, or nearly two-year-old, is a very sweet lady-like creature, quite worthy of her £4 premium, and immeasurably superior to Mr. E. Frost's poor second; any comparison being further emphasised by Victoria Spes, about the worst animal John Ward ever led into a ring: being not only bad in herself, but badly done by. It was at first thought that her ladyship had lent her herdsman to some neighbour for a show; but his charge, alas! is Branches, born and bred. There was only one heifer-calf—Mr. Frost's Strawberry, which took the prize on the distinct understanding of there being nothing against her; while Mr. Durrant's capital cross of the Shorthorn and Angus had, as in Norfolk, all the best of the fat beasts, taking first for oxen or heifers pure-bred or otherwise, and again for steers or heifers by a Shorthorn bull out of a half-bred cow. There was a second prize in the former of these classes, which Mr. Frost won with a Shorthorn, and where Mr. How and Mr. Adeane were commended; but nothing could touch the Aberdeen cross amongst crosses. Over the polled cows of the country, where Mr. Peddar, of Kennett, was first, the judges must have had some difficulty in trying to award the three prizes, the one solitary distinction for Alderneys going to Mr. J. S. Tharp, of Chippenham.

The show of short-wooled sheep was very much an echo of that at Chelmsford, Lord Braybrooke having it all to himself with the Shorthorns, Mr. Giblin going for Oxforda, and Mr. Green, of Stradishall, leading the way with the blackfaces on their native heath. In the first class of short-wool rams, Mr. Giblin, of Bardfield, beat Lord Braybrooke for best with an Oxford, the judges considering the Audley End sheep as pretty generally too delicate; but in the pens of shearing short-wool ewes the positions of these two sorts were reversed, Lord Braybrooke's Chelmsford five being first, and Mr. Street's Oxforda second. For the pens of short-wool lambs, Mr. Samuel Jonas did deservedly well with four very good lots, which took first and second prizes for rams, and second and a commendation for the ewes, where Mr. Northern, of Moulton, was first, and Mr. Jary of Westley, commended for his Black-face and Down

cross. The judges took a deal more kindly to Lord Braybrooke's really good fat shearing wethers, which were placed first and second, with picked three from the Chelmsford fives; Mr. Street being highly commended for some very good Oxfords, and Mr. Dobito receiving a similar compliment as one of "the Suffolk" champions. With little or no competition, Mr. Battcock, of Hemmingford Abbots, was first and second in two classes of cross-breds, pens of ewes and pens of wether lambs, with the now-very-popular "nick" of a Cotswold ram put on to a Hampshire Down flock; but in the class of fat wethers Mr. Street beat these for first place with his Oxfords. For Mr. Henry Webb's cup for the best shearing South-down ram there were only three entries, and these three all by Lord Braybrooke; the best ram in Essex being also the best here, but the judges now reversing the places of the second and third. The other special prizes included a class of cross-bred ewe and ram lambs, where Mr. Battcock was still first, as well as second in the ram class, and Mr. Jary second in the ewes, with the produce of a Lincoln ram and Hampshire Down ewes. Mr. Green won nearly all the chief premiums for Suffolk black-faces, being first for old rams (where Mr. Dobito was second), and first, second, and commended for shearing rams. But there was altogether a very strong show of these sheep, with Mr. G. Jonas, Mr. Jary, Mr. G. King, Mr. Northern, and Mr. Frere's executors amongst the winners, and the judges speaking to a very visible improvement, which they attribute to a dash of Hampshire blood. The longwools were mostly Lincolns and Cotswolds, but there was little or often no competition; and Mr. Gunnell, of Milton, and Mr. Giblin took all the chief prizes for rams, ewes, and lambs, the only exception being in the two classes of shearing Leicester or Lincoln ewes, where Mr. T. O. Daintree was first for the old ewes and first and second for shearlings with some good sorty sheep, especially the shearlings bred from a Lincoln ram of Mr. C. Clarke's, of Ashby-de-la-Lund.

There were not a dozen pigs in the six classes, and Jennings, the trainer of Gladiateur, had all the best of it. His first white boar is of Lord Wenlock's breed, and his big black sow, a Cheshire pig from the stock of the late Captain White. These Cheshires are said to feed famously, and to be quite the admiration of the Newmarket jockey-boys; but we cannot say that we know much of the sort. The two prizes for small boars were duly awarded to the two entries, Lady Pigot first, and Mr. Jillings second; and Mr. King, of Ashley, took first for small sows in two classes with one really nice pen of young pigs.

The horse show was generally moderate, and, strangely enough, there were amongst the riding-horse classes some of the very worst animals in the whole catalogue. Nothing, indeed, could be well worse than the stallions calculated to get hunters, as even with Mr. Thurnall amongst them, the committee neglected to insert the thorough-bred clause, and so of course, as is now generally the case under such circumstances, the entry was a failure. As an example, the premiums should never have been awarded; but the judges were induced to do so, although we feel very certain that neither of them would ever think of trying to breed a hunter from their first prize. This was a halfbred trotting horse, by Fireaway, the property of Mr. Mitchell, that might have been in his place in the next lot of hackney stallions, where Mr. Baltista won with Clearaway, a Norfolk horse with showy action; Mr. Reed, of Downham Market, getting second with his well-known Trotaway. This was a creditable class, in which Mr. Joelyn showed a good-looking horse, pulled down by doubtful forelegs; but the hunting brood mares were indifferent, Mr. Linton taking the first prize with a mean-looking King of Oude mare, and the Rev. W. Smith second with an old mare by Jericho, of more character

than the other. The hunting classes were saved by a couple of entries from Mr. Gardner, of Moulton, his four-year-old being the best of two or three duplicate classes, and a winner amongst the younger horses as well as of a special prize to much the same effect. In some sort of commentary on the hunter-sire class this colt is quite thoroughbred, by Touchwood, out of Lord Burleigh's dam; and in some further commentary on the jumping business, it may be added that the four-year-old resolutely declined to jump hurdles, though this made not the slightest difference in the judges' opinion of him. He is a very bloodlike handsome nag, up to a certain weight, while Mr. Gardner's other horse, the winner of another prize in another class, has more power; and Mr. Tharp's Phalanx, the best hunter of any age, is also well up to weight; but beyond his bone and substance, there is little more to be said for him, as he has a thick, coacher's neck, with rolling, wooden action, and, according to Mr. Bennett, anything but a pleasant horse to ride. Amongst the second prize hunters were Mr. Long's four-year-old, and Mr. Durrant's clever old chesnut that took a prize as a hack at Downham. The two classes proper of hacks here were very poor, nothing beyond Mr. Worth's four-year-old being really worthy of notice, although three or four premiums were duly distributed. Mr. Worth won again with a good galloway; and Mr. J. L. King, of Wood Ditton, had a long way the best pony; while a premium for hackneys in harness also went to Mr. Worth, of Sutton; although the pairs were not much of a match, but then there was no competition. The special premium, offered by the town of Newmarket for a show in Newmarket of thorough-bred stallions to serve half-bred mares, also resulted in but one entry!—Mr. Jennings' German-bred King Pippin, by Blackdrop, out of Letitia, by Priam. The King is not much to look at; but then certainly he was not in show form, having had a very hard season, with the credit of getting some very good high-stepping stock. Mr. Jennings was first again for the best hack, but against lots of competition, and certainly with one of the cleverest and handsomest "nags" in the show. This was Amicable, otherwise Halifax, by Amsterdam, and himself quite thorough-bred. Some of the farmers grumbled a bit at his not being up to more weight, as with the 15 st. condition Mr. H. Martin's good cob that we missed at Downham no doubt would have won. But without the influence of any such clause it was impossible to ignore the fashion and action of the bay five-year-old. The moral of the riding-horse show was thus both with hunters and hacks that "blood will tell," and yet the Committee of the Cambridgeshire Society in the year 1868 continues to offer and award prizes to hunter stallions without pedigrees!

The Shire three-year-old, Mr. Welcher's Honest Tom, the best of his class at so many previous meetings, was the hero of the agricultural classes at Newmarket, taking the Society's premium of £10 for the best stallion, and the All-England Cup of £20 on the same showing. We can only repeat that he is a capital specimen of his breed, with power, action, and "appearance," and we know no cart-horse that is now more generally liked. In the first class Mr. E. Clayden, of Barham was second, with Lion, a fine-topped chesnut that could also move, and Mr. Harvey, of Mildenhall, third—three prizes for three entries. But in the open class, where Lion again competed, Mr. Badham was "next best" with his two-year-old Fitz Emperor, a colt that has much of the good and quite as much of the bad of his sire. In the Society's class of two-year-old stallions Mr. Mainprize, of Ely, was first with his nice Norfolk colt, and Mr. Gillings second with a bay, as indeed the chesnuts were not in such force. One of the best animals in the show for her purpose

was Mr. Warth's roan cart-mare, with power, weight, quality, and action all in her favour, and she walked clean away from her class; though Mr. Waltham was near enough to be placed second in fair company. The mares with foals at foot were nothing extraordinary, Mr. Gillings taking first prize with a rather neat, clean mare, and Mr. T. B. Harvey second. The one three-year old filly, although she was awarded the top prize, could not have won otherwise; and Mr. Wiles, of Denny, took first and second for two-year-old geldings on much the same terms—viz., there being no other entries beyond his own; Mr. Teulon's first prize two-year-old filly was much better, being both useful and handsome, but she had nothing but Mr. Gillings to beat; while the few foals were bad, with Mr. Ambrose first, and Mr. Gillings again second. There were no entries whatever of dray-horses, but there was a really good show of plough teams in pairs—hardy, well-grown, quick-stepping animals, that looked like getting through a fair day's work, and being ready again for another. Mr. Staples was first, with two very smart roans, and Mr. Taylor, of Soham, second, with a commendation for Mr. Peddar, of Kennet, and another good word for Mr. Nunn, who would have been more forward, but that one of his pair of cheanuts was lame. The best three-year-old colt, not entered in either of the two alleged classes, was a very good brown colt of Mr. Battcock's; the executors of Mr. S. Clayden getting the second prize with a light neat son of Chester Emperor; and the Suffolks were thus pretty generally but second-best.

There was a poultry show of rather limited range, and premiums of £10 and £5 for the best collection of implements, for which the following firms entered: Turner, Ipswich; Holmes, Norwich; Maynard, Whittlesford; Ransomes and Sims, Ipswich; Woods, Cocksedge, and Warner, Stowmarket; Baker, Wisbech; Ward and Silver, Long Melford; Wilkinson, Ely; Headly, Cambridge; and Cutlack, Ely. The award was in favour of Woods and Cocksedge first, and Ransomes and Sims second.

There was also prizes for grain, wool, and butter, which were thus distributed: Red Wheat: First prize, £4, T. Gardner; second, £3, not awarded. White Wheat: First prize, £4, L. Kent; second, £2, W. S. Peddar. Oats: No entries. Wool: Five fleeces of long-wool hogg, prize, £4, no merit. Five fleeces of short-wool hogg: Prize, £4, W. T. Brackenbury. Five fleeces of cross-bred wool hogg: Prize, £4, W. T. Brackenbury. Butter—Five pounds of butter, made up in one pound lumps, open to all England: First prize, £5, A. King; second, £3, Mrs. H. P. Balls.

The Judges were—Cart-horses: G. Bedford, Abbots Ripton; P. Portway, Great Sampford. Nag Horses: J. E. Bennett, Bosworth Grange, Rugby; T. K. M. Elliott, Heathencote, Towcaster. Cattle: W. Ladds, Ellington; J. Robinson, Clifton Pastures, Olney. Long-wool Sheep and Pigs: J. Codling, Whaplode; W. Looker, Wyton Manor, Huntingdon. Short-wool and Cross-bred Sheep: C. Howard, Biddenham; H. Thurnall, Royston. Implements: T. Gardner, Moulton; H. Long, Carlton. Grain: F. Challands, Newmarket; B. Colman, Newmarket. Wool: J. W. Turner, Westgate Hill, Bradford. Poultry and Pigeons: E. Hewitt, Eden Cottage, Spark Brook, Birmingham.

#### THE DINNER

Took place on the ground, with Lord George Manners, in the absence of the Duke of Rutland, in the chair. There was a very good attendance. In the course of the proceedings,

Lord HARDWICK said it would not be wrong on his part to give his opinion as to the future, and to dilate upon what were their agricultural prospects of making money. In the last

four years they had had a rapid ascent in the price of wheat. They would allow him to tell them what had been the condition of the wheat market, and what they might look for in the future, as no doubt it would be the case. They had had this year, in the month of March, wheat at an average of 72s. 10d. per qr.; in March, 1867, it was 60s. 11d.; at the same time in 1866, 44s. 11d. per qr.; and in 1865, 38s. 11d. Now he would tell them that the wheat market had reached its highest point; they knew it was now falling, and at least that was a warning to most of them. Why did he think so? America was rapidly quieting and increasing her growth of wheat; and to show them what she could do, though she had not been able recently, in 1861 she raised upwards of three hundred million quarters of wheat for the purpose, and she would do it again. They would have to consider, therefore, what they had to look for. In this year, and for the future, they must be prepared for a fall in the price of grain. That was a statement he conceived of some value (laughter). If they believed it they would be ready for it. His noble friend laughed heartily, and he was glad to see men amongst them who could laugh heartily at the prospect of a reduction of the price of wheat. As a landlord he was glad to hear that laugh, as it indicated the fact that the farmers were prepared to meet the fall in the price of wheat (laughter). His friend still laughed. He could only say that the gentleman represented the superlative of the farmer. When he cheered them with that happy laugh he gave them confidence in the tenant-farmer in the days that were coming upon them.

The CHAIRMAN said the Government had introduced a bill, which had not a political bearing, for the establishment of ports for the killing of newly-arrived meat, and that bill met with so strong an opposition that there was but little chance of its passing into law. Should that be the case, it would become imperative on agricultural communities not to rest till they had procured some security against these evils. Another question to which he would like to shortly call the attention of the meeting was the education of the agricultural labourer. Although he was far from thinking the general progress of education throughout the country unsatisfactory, yet there was no question that the education of the labouring classes did call for improvement (A VOICE: "How about the cottages?"). As far as he had been able to master the question, every boy before he arrived at the age of nine or ten—he should prefer ten—should have given him the necessary opportunity of obtaining sufficient education for his life. This was a subject that must be considered in future Parliaments, and he trusted that the decision arrived at would be a right one. Another point was one which came before them with peculiar claims at the present moment after a lengthened drought—*i.e.*, the water supply of the country. He could not but think that if some of the agriculturists were to place themselves in communication with some celebrated engineer, they might possibly in many districts obtain at a cheap rate, at all events, a limited supply of water, which would enable them to grapple with the very short supply they had now.

Mr. THURNALL said this was the fourth county show he had attended this year; and, so far as he could judge, it excelled the Bedford, and nearly equally the Essex and Bath and West of England shows.

Mr. HOLBEN, the secretary, said hitherto the Society had been unable to extend its operations to the labourer; but he had thought of laying before the committee a suggestion that they should offer a prize for the labouring man who produced a schoolmaster's certificate and proved that he had sent his children to school the most regularly and for the longest term. That would be an incentive or stimulant to self-denial.

Mr. T. JENNINGS, of Newmarket, responded for "The Successful Exhibitors;" and said that the emotions he felt at winning the prizes he had done that day were equal, or greater, than when he had won a great race; and he would endeavour on another occasion to have something better to show.

## THE NORTHAMPTONSHIRE AGRICULTURAL SOCIETY.

## MEETING AT OUNDLE.

It was quite evident one Thursday last month to the most casual observer, that something more than market-day was to come off at the snug little town of Oundle, rigged out as it was in holiday costume, like some grim warrior of the deep, with all its bunting flying. Indeed, every hatchway or loophole was crowded with smiling faces on the look out, as some Grand Seigneur in the form of a shorthorn bull, a bevy of cows, or a pen of sheep made their appearance, or, for what the Shire is still more famous, as some well-made hunter came sauntering along or gay hack went dancing by, who for step and neatness rivalled the lasses themselves; whilst old Dumphling's sleek well-fed looks and gaudy colours on either side the head were fairly outshone by the healthy rosy cheeks of some bouncing dairy-maid, and the flaunting ribands with which she had tied up her bonny black hair. On, on they go to the field of rivalry, to engage in the list for some of the thousand pounds given in prizes; while the banners idly wave in the air, and the cry is still "They come!" The show-ground was laid out close to the town, a beautiful site having been fixed on, and, viewed from the horse-ring or far end of the yard, surrounded as it was by clusters of trees, with the church rising from their very midst, formed a very pretty centre-bit. The strongest part of the exhibition being the horses, we made our way for the ring, which we think would have been better for all—judges, horses, and spectators—if it had not been quite so much on the slope; but this the steward who laid out the yard could not well avoid. The judging of riding horses, cart horses, beasts, sheep, and pigs, all commenced about the same time; and, although we much desired it, in vain we sighed "We would we were a bird," like Sir Boyle Roache, to be in two places at once. Several times we tried it on; but, finding that we were neither here nor there when anything important occurred, we gave up any further hopes of accomplishing an impossibility or bobbing at a cherry. In the hunting brood mares and foals the £20 brought an entry of sixteen; but, judging by many of the specimens sent, we should imagine their owners, like children who dip in a lucky-bag for a prize, trust more to fortune than judgment. The prize-mare is a brown deep-topped useful-looking one by Ambrose, and the highly-commended an old mare, with a capital forehead, but short from the whirlbone to the stifle, while her hocks are also somewhat stilty, and do not come well under her, without we were much deceived by the ground. Then next, with good looks, was the bloodlike chesnut by Monarque, from Mr. Cowper, of Leamington. Mr. G. Lyne's mare by Collingwood, with a foal by General Heas, very dicky in his forelegs, and Mr. P. Durran's mare were worthy of notice. In the hunting mares and geldings five years old and upwards, open to all England, there were some neat useful-looking horses, but nothing very much out of the way. The first prize, a chesnut by Kentucky, showing a deal of blood, is compact, well-made, with good ends, and his stifles well let down. If anything, he is a trifle short. He has a peculiar flourish with his hind feet, and, when trotting, picks his legs up a little too flashy for hunting, and more like reminiscences of Piccadilly. The highly-commended Old Port, bred at High Wycombe, Bucks, is of a good stamp, a neat, deep, well-made, short-legged horse that does not look like a very fast one, and that we think we could improve a bit in his shoulders,

if we had the remodelling of him for hunting-purposes. Thorpe Malsor, a placed horse here last year, was looking very well, and steered by his old pilot, whom we were sorry to see with his arm still strapped down by his side. Mr. Hill, of Oundle, showed a bay with a capital top that could move, but with hocks much disfigured by being capped, as well as bearing the marks of the iron. With Mr. Newcombe Mason up afterwards, he looked all over like going, and brought back to memory one who, as an elegant horseman and for crossing a country, "we shall ne'er look upon his like again." Mr. D. Bletsoe had a six-year-old black of very fair form, and Mr. G. B. Lynes and Mr. J. T. Roe had something pleasing. Mr. Colpman's Islip, Thrapstone, had a good top, but curby hocks; while the Hon. C. W. Fitzwilliam's chesnut mare's, by Affidavit, shoulders did not please us, or allow her to move. There was some taping going on in these classes; but without horses have the same quality, and are of the same build, we really scarcely see the use of it. Monarch by Lovett, in the four-year-olds, was a good-topped hunting-like horse; and the commended of Mr. Sharpe, also by Lovett, though not so grand in frame, is a clever light mover. Mr. W. Brooks had a fair-looking bay, with good limbs, that could go. Mr. Drage's bay gelding has a short neck, but a fair top, and is light below the knee; and Father Meurad, a big fair-looking blood-like horse, a little high on the leg, by Trumpeter, goes the rounds of the shows without collecting any halfpence. The judges picked out Mr. Hill's brown gelding, a compact horse, with just a dash of the cob in him, and his head set on throaty; as besides dishing with the off leg, he has a softish appearance, but they hung over him for some time. In the next class for riding-purposes we had ticked the winner off as a Tilbury, or light-carriage horse, and saw no reason, after looking him over, to alter it. He is a mealy bay, with not a very handsome nob. The second, by Mowbray, was a nice mare that could move; and the commended, a long-backed one, but more handsome than anything. The Hon. C. W. Fitzwilliam sent a brown by Richmond, with something taking about his top, but deformed in his forelegs; and Mr. T. Stokes had a useful one by Lovett. The gelding and fillies rising three were poor; the first, having his toes out and elbows in, is anything but a free mover; the second being a lathy bay of good form and breed. Mr. G. Jackson's thick compact-made chesnut, with blood, looked like making a light charger, as well as a handsome one when caparisoned. Some of the others were remarkable for their bad forelegs or shoulders being too forward. Mr. T. Roe's filly by Lovett had something of the hack about her, if not fashionable. In the colts and fillies we thought the young gentleman from the Land of Bucks by Ilder a long way the best, as he was taking in his looks with good big-jointed limbs. A filly by the Drake, out of Crazy Jane, was fair-looking. The hackney mares and foals under fifteen and an inch, were not a great class. At first the prize went to a mare by the Ugly Buck, a handsome, good-going hack, but she was disqualified, and the first place was then given to one of the "has-beens," in the shape of a varmint old mare by Pantaloon, four-and-twenty years old, and he must have been twenty when he got her, which will carry us back to the death of Louis the Eighteenth, or the laying the first stone of London-bridge. What a way a couple of old ones will

take you, if you only keep them together! The second to the old one was Jessie, a grey—a rather nice-looking little mare, with two stars on her knees, and not over-free in her movements; nor was Mr. E. Stokes's (Bulwick) old mare of great character, and she wanted a little oiling to set her going. Among the hacks not exceeding fifteen and an inch were some very neat ones. Mr. Lyne's mare, by Idler, dam by Skiff, being very good, with action and quality; while the second was a powerful chesnut, with symmetry and good strong action, but with a regular broomstick, with a few hairs at the end for a tail. However, as the rider does not see it, this is not of much consequence; without he happens to be acting as a judge; then, if he gets on one, the proper thing is to stand bolt upright in his stirrups, and look over the horse's shoulders to see if he can observe the animal's toes, and then repeat the same thing behind for his heels, taking especial care not to over-balance himself; having done this, he gets off, and is taken for a very knowing card. The commended was a neat bay of Mr. E. Stokes, of Wansford. The Rev. A. Longhurst had a very nice-shaped horse, a light hunter, by Ambrose, but who did not move so well; while Mr. W. Smith's, Oundle, brown, with a plain head, could go. The Rev. E. Grey's brown mare, Mr. J. H. Silby's brown mare, and Mr. J. D. Bletsoe's bay had something about them to take the eye. The cob winner was a really clever one, in shape and action, and is said to be by an Arab out of a Welsh pony, but she takes more after the dam. There was a little bay pony, a wonderfully quick goer, of Mr. W. Williams, of Oundle, and another Welshman, the pony we mean. Amongst the cart-horses, which, taking them altogether, were a very useful industrious-looking lot, and evidently not kept for show, there were many deep-topped, short-legged, active-looking horses, that would not let the grass grow under their feet. They were just on the move for home as we came round to them, so that we had no time to look them over carefully.

The beasts, both in the fat-stock and breeding classes, were well represented; Messrs. Robinson and Garne, excellent judges, pronouncing them to be an exceedingly good-looking lot—one saying that he would be much surprised if some of them did not obtain honours at the forthcoming exhibition of the Royal Agricultural Society at Leicester. In a class of six, Billy, a very level one, beat an ox, by Britannicus (17452) of Mr. Wood, well-known as the owner of a fat ox, who, after coming off victorious at Birmingham, was taken to the Crystal Palace, and made quite a peep-show affair of. In the steers, a good-looking white two-year-old and six months, by Lord Stanley Spencer (20823), ousted a two-year-old and six months exhibited by Lord Spencer. This naming animals after their breeders is apt to create confusion, and we can hardly see the compliment or taste when you hear the name of some nobleman coupled with a grand bull-like head, bad loins, no rump, and a tail fearfully set on. The Banbury cow was a nice neat-headed one, with quality, and exhibited in capital trim, her rival being also good-looking; while another, from the Burghly herd, came in for empty honours. These were the only competitors. A really nice-headed, level heifer, by Britannicus, carried off the cup, beating one of Lord Stanley Spencer's daughters, Clara, and two others, one coming from Thame, in Oxfordshire. Prizeman, the Downham best bull, was still in capital show condition; his other rivals will be found in the prize-list, all coming in for commendations, with the exception of the Hon. C. W. Fitzwilliam's Jasper. However, the M. P. was elected in the next class, with the rather leggy, ox-like Baron Windsor, second to the good-headed old Lord Chancellor, from Babraham. The six other competitors were not considered worthy of a commendation.

Cherry Butterfly (23550), out of a Duchess, is a very lengthy youngster, one year and nine months old, and considered to be the best animal in the yard, but he struck us as being a little hollow behind his shoulders—a hollow that later in the evening we wished we had had our heads in, having joined innocently enough what we took for an Ordinary, but which turned out to be an out-and-out *hip! hip! hip! hurrah* affair, with one cheer more, the noisiest dogs believing they were the most loyal. Really, we believe if our good little Queen had been there, knowing the kindly feeling she has for all her subjects, she would have addressed them in something after this manner: "Now, now, my good fellows; do pray stop this bawling and jumping up directly after dinner, like so many jacks-in-the-box. What good can this noise do our royal self, our children, our army, navy, bishops, or clergy, or what we take quite as much interest in, your noble selves? We do not doubt your loyalty for a moment, seeing it as we do written, crossed and recrossed, in every feature of your open manly countenance (loud cheers.) Do pray stop that noise; consider our royal head. My friends and subjects, do pray enjoy yourselves and your wine and the other good things we see the table covered with, in a rational manner. Let us hear again that pleasing hum throughout the room, caused no doubt, as we saw you gathered in knots of five or six, by cheerful conversation, interchanging ideas and gathering information before the gentleman at the top of room put an end to it by proposing our noble self (loud cheers.) Pray recollect yourselves; let us hear no more of it; we had imagined that in the march of civilization these noisy professions had gone out with the Bill for the Consumption of Smoke."

Grand Sultan, from what we could see with his cloth on, had length, quality, and handsome looks. He is by Prize-man, the first bull of any age. Jolly Queen, still on her travels, and Beauty had eight others to contend with, three or four, like themselves, being blessed with good looks. Queen of Rosalea proved the handsomest of the heifers by a long way; Mr. Pawlett, however, with a young Prince Hope-well, beating her half sister in the next class. Mr. How's red and white heifer of one year and ten months was declared the victress in a class of seven, including one of the Duke of Buccleuch's, and Victoria Spes, one of Lady Pigot's—dam Victoria Alba by Prince Alfred. So much for names. In a class of five, Mr. Pawlett's 11 months' heifer calf by Baron Killerby (23364) out of Rose Warlaby by British Flag (19351) was at the top of an entry of five; while Sir W. de C. Brooke's 1 year and 8 months' steer by Lord Stanley Spencer out of Amethyst by the Hero of Kara, in a class of four, carried out the saying of "the last shall be first," being at the bottom of the list. Sir William was first again in the next with Rose of Geddington, 1 year and 10 months, by Roger (24980), out of Rose of Ruby.

The sheep were strongest in long wools, most of the classes being well filled; while in the Down tops the Oxfordshire mustered very well. There were few entries in the classes for crossbreds and shortwoolled or half-bred. There was a poor show of pigs, while, on the other hand, the poultry was very strong.

## PRIZE LIST.

### RIDING HORSES.

JUDGES.—J. M. K. Elliott, Towcester.  
S. Middleton, Wansford.  
T. B. Tarnell, Wellingborough.

Mares and foals for hunting purposes, the foal to be by a thoroughbred stallion.—First prize of £30 to Mr. J. Cheasy,

Oundle (sire Ambrose). Highly commended: Mr. T. Tryon, Bulwick Hall (black).

Mares and geldings, five years old, adapted for hunting purposes (open to all England).—First prize of £20 to Mr. S. Ayres, Towcester (sire Kentucky). Highly commended: Mr. J. Drage, Moulton Lodge (Oldport).

Mares and geldings above four and under five, adapted for hunting purposes.—First prize of £20 to Mr. S. Gale, Kelmash (Monarch).

Geldings or fillies above three and under four, adapted for hunting purposes.—First prize of £7 to Mr. T. Bonsor, Oundle (sire Richmond); second of £3 to Mr. J. Smith (sire Mowbray).

Geldings or fillies above two and under three, adapted for riding purposes.—First prize of £7 to Mr. W. J. Cheney, Oundle (sire Richmond); second of £3 to Mr. H. Hunt (sire Northern Light).

Colts or fillies above one and under two, adapted for riding purposes.—First prize of £7 to Mr. J. Clode, Great Linford, Bucks (sire Idler); second of £3 to Mr. J. Lawrence, Elton (sire The Drake).

Hackney mares not exceeding fifteen hands one inch.—First prize of £7 to Mr. R. Ward, Uppingham (sire Pantaloon); second of £3 to Mr. S. Deacon, Oundle (Jessie).

Hackney mare or gelding not exceeding fifteen hands one inch.—First of £10 to Mr. G. B. Lynes, Preston Deanery (sire Idler); second of £3 to Mr. H. L. Bayley, Northampton (sire Criuk).

Cobs, mares or geldings, not exceeding fourteen hands high.—Prize of £5 5s. to Mr. J. H. Lowndes (sire an Arab).

Ponies not exceeding thirteen hands high.—Prize of £5 to Mr. J. D. Bletsoe, Grendon Hall, Notts.

#### CART HORSES.

JUDGES.—J. Bird, Yaxley, Peterborough.  
T. Wood, Witchly Warren.

Cart mares with foals at foot.—First prize of £10 to Mr. C. E. Tebbutt, Oundle; second of £5 to Mr. T. Baker, Weedon.

Cart geldings or fillies above three and under four.—First prize of £7 to Mr. J. W. D. Harris, Wootton (gelding); second of £3 to Mr. R. Wood, Clapton, Thrapstone (filly).

Cart gelding or filly above two and under three.—First prize of £7 to Mr. R. Timms, Ragby (gelding); second of £3 to Mr. T. Baker, Weedon (filly).

Cart yearlings, geldings or fillies.—First prize of £5 to Mr. E. Winder, Clapton Hall (filly); second of £3 to Mr. R. Timms, Ragby (gelding).

#### BEASTS.

JUDGES.—G. Garne, Chipping Norton.  
J. Knowles, Wetherby.  
J. Robinson, Clifton Pastures.

Fat stock, open to all England.—Oxen exceeding three years and three months on the 1st December next, without restriction as to keep, though the kind of food is to be certified.—First prize of £10 and cup to Mr. C. Speed, Exton (Billy); second of £5 to Mr. R. Wood, Thrapstone (sire Britannicus). Highly commended: Mr. T. Pulver, Broughton, Kettering.

Open to all England.—Steers not exceeding three years and three months on the 1st December next, with same condition as to food.—First prize of £10 to Sir W. de Capel Broke, Geddington Grange; second of £5 to Lord Spencer. Highly commended: The Marquis of Exeter. Commended: Mr. J. How, Broughton, Hunts.

Open to all England.—Cows of any breed or age (same condition as to keep).—First prize of £10 to Mr. J. Ivens, Banbury; second of £5 to Mr. W. Spencer, Hinckley.

Open to all England.—Heifers of any breed, not exceeding four years old on Dec. 1 next (same condition as to food).—First prize of £10 to Mr. R. Wood, Thrapstone (sire Britannicus); second of £5 to Sir W. de Capel Broke (Clara); commended, Mr. R. E. Oliver, Towcester.

Breeding and store stock, open to all England.—Bulls of any age.—First prize of £20 to Mr. J. Lynch, Stroxton, Grantham (Prizeman, 24870); highly commended, Mr. T. E. Pawlett, Beeston, Beds (Baron Kilerby), and Lady E. Pigot (Charles le Beau); commended, Sir W. de Capel Broke (Lord Stanley Spencer).

Bulls above two years old, the property of or hired by the exhibitor, that has proved himself a stock-getter, which shall have been or is to be used in the county.—First prize of £15 to Mr. R. Wood, Thrapstone (Lord Chancellor, 20160); second of £5 to Hon. C. W. Fitzwilliam (Baron Windsor).

Bulls above one and under two years of age, which shall have been or is to be used in the county.—First prize of £15 to Mr. R. Oliver, Towcester (Cherry Butterfly, 23550); second of £5 to Sir W. de Capel Broke (Duke of Wateringbury, 23790).

Bull calves above six and under twelve months old.—First prize of £10 to Mr. J. Lynch, Stroxton (Grand Sultan); second of £5 to Mr. R. E. Oliver, Towcester (Cherry Grand Duke); highly commended, E. Freeman, Thame, Oxon.

Best cow of any breed, in-milk or in-calf.—First prize of £10 to Mr. J. How, Broughton, Hunts (Jolly Queen); second of £5 to Mr. C. J. Bradshaw, Burley-on-the-Hill (Beauty); highly commended, Mr. C. Speed, Exton, Oakham (Diana), Sir W. de Capel Broke, Geddington Grange; commended, Mr. S. Deacon, Oundle (Emma).

Heifers of any breed, in-milk or in-calf, above three and under four years old.—First prize of £10 to Lady E. Pigot (Queen of Rosalea); second of £5 to Mr. Selby, Oundle.

Heifers of any breed, in-milk or in-calf, above two and under three.—First prize of £10 to Mr. T. E. Pawlett, Beeston, Beds; second of £5 to Lady E. Pigot (Dame of Rosalea).

Heifer of any breed, above one and under two years.—First prize of £10 to Mr. J. How; second of £5 to Mr. T. E. Pawlett; commended, Mr. C. Speed, Exton, Oakham, (Polly).

Heifer or calf of any breed, under 12 months.—Prize of £5 to Mr. T. E. Pawlett.

Shorthorn steer, under two years.—First prize of £5 to Sir W. de Capel Broke.

Shorthorned heifer, above one and under two years, to have been in the possession of the exhibitor for six months previous to the show (open to the above subscribers and to all members of the society residing in the county).—Prize of £20 to Sir W. de Capel Broke (Rose of Geddington).

#### SHEEP AND PIGS.

JUDGES.—T. Jones, Wellingborough.  
J. Painter, Nottingham.  
T. Wagstaff, Peterborough.

Pens of ten long-woolled ewes, that have suckled lambs to June 1, 1868.—First prize of £10 10s. to Mr. J. Gillett, Charlbury; second of £5 5s. to C. J. Bradshaw, Oakham; highly commended, Mr. R. Barlow, Oundle, and Mr. W. Godfrey, Oundle.

Pens of five long-woolled ewes.—First prize of £5, to Mr. J. Giblin; second of £2 10s., to Mr. C. Hales; commended, Mr. C. F. Bradshaw, Alstoe, Oakham.

Pens of five cross-bred ewes, that have suckled lambs to June 1, 1868.—First prize of £5, to Mr. J. Treadwell, Winchendon, Bucks.

Pens of three cross-bred shear hogs.—First prize of £5, to E. Freeman, Thame, Oxon; second of £2, to Mr. F. Street, Bedford.

Pens of three long-woolled shear hogs.—First prize of £5, to Mr. J. Edwards, Buckworth, Kimbolton.

Shearing long-woolled tups.—First prize of £5, to Mr. J. Gillett, Charlbury; second of £3, to W. F. Marshall, Branston, Lincoln; commended, Mr. J. Gillett.

Long-woolled tups of any breed, two shear and upwards, that has proved himself a stock-getter.—First prize of £7, to Mr. J. Lynch; second of £3, to Mr. W. F. Marshall, Branston, Lincoln; commended, Mr. J. Gillett.

Down tups of any age.—First prize of £7, to Mr. J. Treadwell, Winchendon, Bucks; second of £3, to Mr. J. Giblin, Bardfield, Essex; commended, Mr. F. Street, Harrowden, Bedford.

Pens of five long-woolled wether lambs.—First prize of £3, to Mr. T. G. West, Dallington, Northampton.

Pens of five long-woolled ewe lambs.—First prize of £3, to Mr. T. W. Harris; second of £1 10s., to Mr. J. Gillett.

Pens of five short-woolled or half bred wether lambs.—First prize of £3, to Mr. J. N. Beasley, Brampton, Northampton.

Pens of five short-woolled or half bred ewe lambs.—First



prize of £3, to Mr. J. Longland, Grendon, Northampton; second of £3, to Mr. J. N. Beasley, Brampton.

Boars of any breed to be used in the county.—First prize of £5, to Mr. J. A. W. Underwood, Oundle; second of £2, to Mr. S. Deacon, Oundle.

Sows breeding or suckling, of any breed.—First prize of £5, to Mr. S. Deacon, Oundle; second of £2, to Mr. Yorke, Holdich; commended, Mr. J. Wheeler, Shipston-on-Stour.

Pens of three fat pigs, of any breed or age.—First prize of £5, to Mr. R. Wood, Thrapstone; highly commended, Mr. J. Giblin, Bardfield, Essex.

Five breeding pigs of one litter, above three and not exceeding six months old.—Prize of £5, to Mr. R. Wood.

#### IMPLEMENTS.

Prizes awarded to exhibitors: Amies and Barford, for general collection of reapers and mowers £3, for rollers and crushers £2, for improved large cake crushers £1, and their general

collection was highly commended. To Ball and Son, Rothwell, for collection of carts and waggons for agricultural purposes £3; for an improved scuffer £1. To Hayes and Son, Stamford, for a collection of carts and waggons for agricultural purposes, £2. To Richmond and Chandler, Manchester, for an improved large chaff-cutter, £2. To Ashby and Jeffery, for a small chaff-cutter £1, their improved haymaker highly commended. To Smith and Grace, Thrapston, for bean and oat mill £2, for small chaff-cutter £1. To T. Corbett, for an improved winnowing machine, £1. To Chapman, of Apethorpe, for collection of carts and waggons £1, break and cart highly commended. There was a trial of mowing machines, which took place in a meadow low and moist, where the work was excellent. There were five competitors: Hornsby, Kearsley, Samuelson, Burgess and Key, and Wood, of Upper Thames-street. The first prize of £10 was awarded to Samuelson, whose machine cut the allotted acre in 45 minutes; and the second of £5, to Woods, whose American machine did the same amount of work in 43 minutes.

## THE SUFFOLK AGRICULTURAL ASSOCIATION.

### MEETING AT FRAMLINGHAM.

The Suffolk Association, blessed as it is with its park at Ipswich and the old castle grounds at Framlingham, two of the prettiest show-yards in the kingdom, and ranking, as it does, as one of the oldest of our agricultural societies, does not with years appear to increase in stature, but, on the contrary, is evidently on the wane. This downward tendency is easily traced to a want of spirit equal to these go-ahead times, as well as to a want of liberality. Indeed, the Suffolks can be tempted into an adjoining county to carry off a twenty-five or a twenty-pound prize, while at home they in return barely offer sufficient to pay for the seed cake and sherry, so necessary for the successful exhibitors' friends who come to do homage to the prize animal on his return to his stall. Several old members, on discussing the subject, came to the conclusion that they did not see why they should not be able to get up as good a prize list as that of their neighbours in Essex; and the chairman, as will be seen, spoke very pointedly to this at the dinner. The ground was nicely laid out with canvass sheddings, for the horses, cattle, sheep, and pigs, that afforded plenty of protection from the sun, which was scorching and no mistake; while the two rings, for judging the riding and agricultural horses, adjoined each other, and enabled one to see what was going on in both, besides affording a most agreeable relief to the eye from that monotonous study of red and all-red—a colour that the agriculturists of Suffolk, in spite of the old adage, think it absolutely necessary that a good one should be. To save people from unnecessary feats of pedestrianism, in following each class to their standings, to get at the winners, the numbers might be hoisted in the ring after each award. Even the strong feature of the show, the red and all-red, good as they still are, were not up to what we have seen, although the twenty pounds divided into three prizes brought a very excellent class, and several well-known prize takers, including the first and second at the Royal Bury show last year, but who now reversed their position or something more, as the compact, well-built, short, stout-limbed, active looking Cupbearer was first, whilst Mr. Bobby's Conqueror, with his over-created neck, set on as if part and parcel of something else not belonging to him, was, with his weak arms and thighs, nowhere. The second was a well-knit one, bred by Mr. Bromley, by Wolton's horse; but more to our fancy, barring his feet, was another compact, well-built animal, bred by Mr. Gentry, and foaled in 1861. Why the

names of these horses are not put down in the catalogue we should much like to know, as what with Conqueror this and Emperor that over and over again, with f. s. d., s., or b. tacked on, and in one place a five year-old and another six, is enough to muddle the head of a Porson without the drink, or a Bidder without the addition of figures. Mr. Rist's Harwich Emperor, whose forelegs we were not in love with, had met with some accident, and was disqualified this time without giving him the benefit of a doubt. The other competitors were G. Estaugh's Marquis, E. Cavell's Victor, and S. Wolton's Monarch, the fight being between Mr. Rist's horse, and Mr. Crisp's three. How long the judges hung over this class before calling in a referee to decide for them, we will not say; but this we will say, it was unpardonable. In the three-year-olds the Bury decisions were again reversed. In the two-year-olds there were some good specimens of the Suffolk, the Woodbridge colt being a fine-grown and very forward one. The yearling entire colts were good, though few, two having prizes and the other commendations. There were only two *gast* or barren mares—the nice-looking deep-topped Moggy, by Canterbury Pilgrim, and the useful good-limbed Matchett by Hercules; while in the three-year-old fillies Mr. Wolton had it all his own way, the good-looking young Matchett, commended in Essex, having nothing to oppose her: Bonny, by name and nature, though blessed with that abomination in horse-flesh so common to most of the Suffolks, the calf-knee, or in other words, perhaps more appropriate, being back at the knees, was the best two-year-old. We saw a thorough-bred whose legs inclined the same way, through mere sympathy, and a short residence in the county; for his great ancestor's legs were all the other way. Duchess, by Bobby's Conqueror, the second to Matchett, was thought by many to be quite her equal; while a known good judge, who had carefully looked her over, declared he quite agreed with the verdict. The yearling fillies were poor, with only three competitors for the two prizes. There were also the same number of geldings of any age, the prize-horse being an eight-year-old, a lengthy deep horse, on a short leg, by Capon's Duke. The winning pair of cart-geldings were very good-looking, and the highly-commended useful, and from appearance seeming as if they belonged to a self-supporting club, which is more than we can say of most of the others, idleness apparently having clothed them not in rags, but in

burdens of fat. Is not this fattening carried a little too far? Matchett and Dapper, a pair of cart mares, were as handsome as anything in the yard; but, as "handsome is as handsome does," they did not look like work-a-day folks.

In the thorough-bred stallions, Captain Barlow, who has done so much for the breed of horses in the county, and who has still his work cut out for him, through a slice of luck this time became possessed of the enormous sum of ten pounds with King of the Dale, and seed-cake and sherry will be in the ascendancy at Hasketon; his only opponent Beauville, led by a son of old Martin Starling, whose face of the roseate hue, well-filled scarlet, cords, and tops, must be familiar to millions who have seen one of the sights of the world—a Derby-day. Beauville was disqualified, having a contracted hoof. He is a brother of Rapid Roan, and of the same colour, bred by Lord Glasgow and exhibited by Lord Stradbroke, and is really a neat clever lengthy short-legged thoroughbred horse, without lumber. He has good ends, is a trifle slack in his back, with good short-jointed limbs from the knee and hock down, that have seen some knocking about; but his good head is set on fearfully throaty to a rather peacocky neck. There was no opposition in the coaching or roadster stallions, there being a prize for each, and one over; but we will not say they were properly placed. A good stamp of mare won in a poor lot of hunting mares with foal at foot, and a neat dappled brown in a poorer sample of coachers. Then in the cob mares there were some clever hacks; but the only one that could come under the definition was old Gipsy, the dam of Silver Locks, the prize hunting mare at Bury; and also of Lucifer, a well-known "Brummagem" prize cob. Mr. Crisp exhibited a varmint old chesnut hackney; Mr. Groat, a strong, useful, moving one; and Mr. Rackham, a neatish one, rejoicing in one of the old-fashioned names of our great great grandmothers, not Hannah Maria, but Mary Jane. The hunting and coaching foals were both by the disqualified Beauville, and the roadster by Quicksilver Shales. Of the weight-carrying three-year-olds, as hunters, the less said the better; for Mr. Easterton's Fitz-Weatherbit, by Weatherden, was the only one with shoulders approaching his purpose. In the hackney mares or geldings the prize went to a vulgar-looking clod-crusher, suitable for an explorer, traps and all; or to come in generally useful in case of a scarcity of beef. Alice is a neatish hack and a mover, but a little raw in her manners; while a lathy black, with a fiddle head set on to his neck like a case, moved in grand style. There were three others very fair—Mr. Capon's, Mr. Barker's, and Mr. Borrett's. In the hunting mares or geldings were two or three neat ones, but the class was more remarkable for a good-looking, hunting-like roan; a would-be musical gentleman being disqualified for an attempt to hum "Gentle Zetella" or "Not for Joseph"; and the two more fortunate Brewers. The coaching gelding, Dandy, is a stylish-looking animal; and Polly, a neat pony, with power. Rufus, who carried off the Framlingham Hunter cup, is a good stamp, with breed—rare old head and limbs, though all humility about the knees, having seen some service in the quarter of a century he has been permitted to roam. He belonged at one time to Mr. Tharpe, near Newmarket, and, no doubt, matriculated at Cambridge. Mystery is a neat short-jointed hunting mare, Mr. Groat's bay of some character, and Mr. Gayford's Charley a neat hack.

The show of cattle was small indeed, numbering as it did but thirty head. What would old Rhodes, not the statue, but the dairyman, when Camden Town was in fields, have thought of such an exhibition, when his own cows often numbered nine hundred and ninety-nine, but never reached a thousand? Or at least, so says tradition. The Polled

Suffolks, with which we were much pleased, were in the greatest force (red and all red again), having among them some really handsome bloodlike little toys. With a sirloin from one and a saddle from the Elmham Hall flock, we think, any one might manage to rought it. King Alfred, a polled Suffolk, is very neat; but Rendlesham Hero, though handsome, has rather a big head, which gives him a Tom Thumb, or dwarfish appearance. In the cows, Sprightly, from the Rendlesham herd, with a beautiful top and quality, beat a pretty one from Mr. Tomline, who exhibited some very clever things, both in horses, cattle, and sheep. Favourite, the silver-medal cow at Downham, came in for empty honours only. In the three-year-old heifers, with three entries, Violet 2nd had plenty of quality, of which Red Stockings was not deficient; Sir Edward Kerrison being again to the front, with a level stylish heifer of quality, in a match with one Mr. Tomline's. Of Shorthorns there were not half-a-dozen, and but one pedigree bull amongst them, excepting Mr. Cooper's bull from Pencraig, and he does anything but justice to that herd; though he landed a prize with nothing against him. Sorcerer, the good-looking county bull at Chelmsford, had no trouble in disposing of Mr. Crisp's, who, though a neat one, falls off in his hind-quarters. Three cows in milk, a fat heifer, and two fat oxen, a neat polled pair of Mr. Wolton's, and two pairs of horned cows made up the total.

The sheep were but a handful, many of the classes being represented by an entry or two only. But the most remarkable fact was Mr. Tomline beating Lord Sondes with his own blood in the shearing tups; while in the tups of any age there was a capital representative from Elmhall Hall. In the shearing ewes Lord Sondes had two very nice pens, but Mr. Tomline managed to score a second with his only entry, and in the short-woolled shearlings was first without opposition. Mr. Gayford, with some half-breds, was unopposed in the pens of twenty, both in the wether and ewe lambs, though his sheep were but in poor trim. With blackfaces Messrs. Dobito, Green, and Harvey were the only exhibitors, excepting a troupe of Negro melodists, with banjo, bones, and eccentric costumes, and, like the sheep, anything but a matchy lot.

The pigs were few in numbers, but good in quality, coming, as they all did, with the exception of a couple of pens of Mr. Sawyer's, from two well-known breeders; and the prizes went, when there was any opposition, pretty much as you would have introduced those two well-known gentlemen, "Mr. Stearn, Mr. Crisp—Mr. Crisp, Mr. Stearn;" or like we have seen before now, a couple *vis-à-vis*, armed each with a black bottle, when so much wine was included in the dinner-ticket, and it was considered necessary to put on a pretty laugh, bob the head like a couple of Mandarins, and repeat each other's names before drinking a glass of wine—"Mr. Crisp, Mr. Stearn—Mr. Stearn, Mr. Crisp." In the black sow and pigs and white sow and pigs, and pens of three black sows and three white there was no opposition, and in the pen of five breeding pigs Mr. Stearn was opposed by Mr. Sawyer only. The other classes were matches between Mr. Crisp and Mr. Stearn, but with odds or entries in some cases of three to one on the former. Lady Elizabeth—unfortunate name!—a black sow of breed with a narrow back and a tucked-up appearance, was not liked so well as Mr. Crisp's second by the "olloi piggoi," and, we believe, the judges were not quite unanimous as to the verdict.

The bells rang merrily as we came away, and crowded Framlingham, to all appearances, was the happiest of the happy, and gayest of the gay. But what a pity there was not a more liberal prize-list!

## PRIZE LIST.

## AGRICULTURAL HORSES.

JUDGES.—W. Bloomfield, Hockwold, Brandon.  
A. Freyer, Debenham.

Stallions having served not less than twenty mares in the county.—First prize of £10 (cup bearer), and second of £5, to T. Crisp, Butley.

Three-year-old stallion.—First prize of £6 to T. Crisp; second of £5 to W. Wilson, Baylham (President).

Two-year-old stallion.—First prize of £5 to J. Grant, Woodbridge; second of £4 to W. Wilson; third of £3 to C. Boby, Stutton (Captain). Highly commended: J. Sawyer, Tunstall (Duke).

Yearling colts.—First prize of £5 to G. Tomline, Orwell Park; second of £3 to W. Wilson, Baylham. Commended: S. Wolton, Newbourn, and T. Crisp.

Mares and foals.—First prize of £6 to S. Wolton, jun., Kesgrave (Violet); second of £4 to G. Tomline (Darby).

Foals.—First prize of £5 to D. Capon; second of £3 to T. Crisp. Commended: S. Wolton, Kesgrave.

Mares.—First prize of £6 to W. Borrett, Framlingham (Moggy); second of £4 to J. Catchpole, Letheringham (Matchett).

Three-year-old fillies.—First prize of £6 to S. Wolton, jun., Kesgrave (Matchett).

Two-year-old fillies.—First prize of £5 to G. Tomline (Bonny); second of £3 to A. Noble, Creeting (Duchess).

Yearling fillies.—First prize of £4, and second of £3, to S. Wolton.

Geldings of any age.—Prize of £4 to T. Capon (Bowler).

Pairs of geldings.—Prize of £8 to T. Easterton, Bawdsey.

Pairs of Mares.—The Cup to T. Capon (Matchett and Depper). Commended: Mr. S. Wolton (Diamond and Depper).

## RIDING AND COACHING HORSES.

JUDGES.—Capt. Blake, Claydon.

H. Overman, Weasenham.

Thorough-bred stallions.—First prize of £10 to Captain Barlow (King of the Dale).

Coaching stallions.—First prize of £10 to J. Grout, Woodbridge (Harkaway).

Roadster stallions.—First of £10 and second of £5 to J. Grout.

Hunting mares and foals.—Prize of £5 to T. Crisp.

Coaching mares and foals.—Prize of £5 to F. G. Freeman (Rainbow).

Cob mares, fourteen hands high and not exceeding fifteen hands.—Prize of £4 to Captain Barlow (Gipsy).

Hunting foals.—Prize of £4 to F. G. Freeman, Reyden (roan).

Coaching foals.—Prize of £4 to F. G. Freeman (roan).

Roadster foals.—Prize of £4 to R. V. Sutton (bay).

Three-year-old weight-carrying mares or geldings for hunting purposes.—Prize of £5 to G. Fish, Campsey Ashe.

Three-year-old coaching mare or gelding.—Prize of £5 to N. Welton, Bredfield.

Three-year-old roadster mares or geldings.—Prize of £5 to J. Garnham, East Stonham (bay).

Two-year-old mares or geldings for hunting purposes.—Prize of £4 to M. Mumford, Creeting (Queen of Clubs).

Hackney mares or geldings.—Prize of £5 to F. G. Freeman (Norfolk); second of £3 to J. Grout (Alice).

Hunting mares or geldings.—First prize of £5 to E. Green, Irworth (Brewer); second £3 to J. Grout (Brewer).

Coaching mare or gelding.—Prize £5 to J. Grout. Highly commended: T. Easterton (Bawdsey).

Ponies not under twelve hands and not exceeding thirteen-and-a-half hands high.—First prize of £4 to J. Grout (Polly); second of £3 to N. Catchpole, Ipswich (Tom).

Hunters of age, regularly hunted in the county last season.—Silver Tankard to Rev. A. Bond, Friston (Rufus); extra prize to T. Capon (Mystery).

## CATTLE.

JUDGES.—J. Claydon, Littlebury.  
T. Fulcher, Elmham.

Suffolk bulls under two-years-old.—First prize of £4 to

Lord Boudlesham (Hero); second of £2 to G. Gooderham, Monewden (King Alfred).

Suffolk cows, in milk or in calf.—First prize of £5 to Lord Rendlesham (Gem); second of £3 to G. Tomline (Pretty). Highly commended: S. Wolton (Favourite).

Suffolk heifers, three-year-old, in milk or in calf.—First prize of £4 to Sir E. C. Kerrison (Violet 2nd); second of £3 to G. Gooderham (Red Stockings).

Suffolk heifers, two-year-old, in milk or in calf.—First prize of £4 to Sir E. C. Kerrison (Princess); second of £2 to G. Tomline.

Bulls of any other breed, not under two-years-old.—First prize of £6 to J. Upson (Sorcerer); second of £3 to T. Crisp (red and white Shorthorn).

Bull of any other breed under two years old.—Prize of £4 to G. K. Cooper (Euston).

Cow of any breed but Suffolk, in milk or in calf.—First prize of £5 and second of £3 to N. Catchpole, Ipswich.

Fat heifers, not exceeding three-years-old.—Prize of £2 to W. Thurlow, Hacheston.

Pairs of polled cows, of any breed, for dairy purposes.—Prize of £4 to S. Wolton (Heiress and Cowslip).

Pairs of horned cows.—Prize of £4 to T. Capon, Dennington (Polly and Nancy).

Fat ox of any age.—Prize of £4 to J. Upson (Prince).

## SHEEP.

JUDGES.—O. Hawkins, Colchester.

C. Howard, Biddenham.

Southdown tups of any age.—Prize of £6 to Lord Sondes.

Southdown shearing tups.—First prize of £6 to G. Tomline; second of £2 to Lord Sondes.

Tup of any age of the Suffolk black-faced breed.—Prize of £6 to J. M. Green, Stradishall.

Shearing tups of any age of the Suffolk black-faced breed.—First prize of £6 and second of £2 to J. M. Greene.

Pens of five Southdown shearing ewes.—First prize of £6 and second of £2 to G. Tomline.

Pens of five shearing ewes of the Suffolk black-faced breed.—First prize of £6 and second of £2 to G. King, Gazeley.

Pens of five short-wooled shearing wethers.—Prize of £3 to G. Tomline.

Pens of twenty wether lambs of any breed.—First prize of £4 and second of £2 to G. Gayford, jun., Rymer House.

Pens of twenty ewe lambs of any breed.—First prize of £4 and second of £2 to G. Gayford.

## PIGS.

JUDGES.—O. Hawkins, Colchester.

C. Howard, Biddenham.

Pigs.—Boars of the black breed.—First prize of £5 to S. G. Stearn, Brandeston (Black Tom), and second of £3 to T. Crisp.

Boars of the white breed.—First prize of £5 to T. Crisp, and second of £3 to S. G. Stearn, Brandeston.

Sow and pigs of the black breed.—First prize of £4 to S. G. Stearn.

Sow and pigs of the white breed.—First prize of £4 to J. Sawyer, Tunstall (Victoria).

Breeding sows of the black breed.—First prize of £3 to G. S. Stearn (Lady Elizabeth), and second of £3 to T. Crisp and highly commended.

Breeding sows of the white breed.—First prize of £3 and second of £2 to T. Crisp. Highly commended: G. S. Stearn (Lady Caroline).

Pens of three sows of the black breed, pigged since Nov. 1st.—Prize of £3 to S. G. Stearn.

Pens of three sows of the white breed.—Prize of £3 to S. G. Stearn.

Pens of five pigs, not exceeding four-months-old, for breeding purposes.—Prize of £4 to S. G. Stearn.

## THE DINNER.

At the dinner, which was not so well attended as heretofore, Sir EDWARD KERRISON, the Chairman, said, in proposing "Success to the Suffolk Agricultural Association," he had not himself been able to see the show of that day, but general report told him that though not at all equal in numbers to the shows of former years, it was very good indeed in quality.

There were circumstances which necessarily rendered this show small. For two years they expected the show of the Royal Society to be held in the county—for one year in vain; and when it was held, it was held without cattle. During those two years, no one would subscribe to the Suffolk Society, which was going to give its funds in a lump to the Royal Society. Another reason why the show was small was the smallness of the prizes. He believed if the spirit of the county were roused that they would be equal to the occasion; and he hoped that no feeling that the labourers should be dissociated from the society would be allowed to prevail. Let them see whether they could raise the funds; and at another meeting there would be prizes enough to induce people from a distance to come to the Suffolk show. They must not be discouraged because Norfolk and Essex had a large show, and Suffolk not so good, for there were 100,000 more inhabitants in Norfolk, and the same number more in Essex, than in Suffolk; and in Norfolk there were 50,000 more cattle than in Suffolk, and 200,000 more sheep, and they could not expect the same number of animals at the show of one county that there was in the other. Agriculturally speaking, they had had a year of considerable difficulty; it was not to them alone, but to the country at large. The deficiency of wheat to be met in this country was twenty-seven millions. That was to say, last year they had to pay twenty-seven millions more money for foreign corn than was wanted in 1863, when there was the largest harvest for twenty years. What the effect must be upon the country he could not say, but it was satisfactory to know that, by energy and continued activity, the agriculturists, by superior management of the land, were enabled quickly to make up the loss occasioned by a bad harvest in comparison with France, where only 15½ bushels per acre were produced against 28 in England; and although the deficiency between 1863 and 1867 was as much as 14 bushels an acre, they would perceive what energy could do. Still they knew that further exertions were necessary if they meant to keep up in the race with foreign competitors. The average supply of wheat annually wanted was twenty million quarters;

and last year the quantity produced was only nine millions, the rest having to be supplied from abroad. England took the first place in the agricultural department of the Paris Exhibition. Last year, at the Royal Society's Show at Bury, they saw some 4,000 implements: the show was very interesting; and there were, what he thought essential, prizes for the best implements, so as to enable agriculturists to know which were the best. At that show they saw the steam plough, and he would say that it would be some time before they ploughed by steam in this country, for two generations of farmers had dug ditches, which it would take another generation to get rid of, and they must be got rid of before they could avail themselves of steam. But when they remembered that the Viceroy of Egypt had more steam ploughs than were in use in the three or four eastern countries—

Mr. R. GARRETT: More than in all England.

Sir E. KERRISON: Even more than in all England. He thought when they thought of this, it was time for them to consider whether they could not use them with advantage. The question with reference to the labourers had arisen; and he should be indeed sorry if they dissociated them from the society, for the interest of all—landowners, occupiers, and labourers—was one. He referred to the subscription paid by the working-classes to friendly societies and clubs, and to the efforts they made to avoid becoming a burden to the rates; and he asked how could they do greater good than by trying to assist these honest labourers in their endeavour to provide for the day of sickness and for old age? It was a question, not of charity, but of positive expediency. He condemned the attempt to get the agricultural labourers to form a trades' union, pointing out the agricultural labourers had a large number of different occupations; and he advised employers to try to keep the younger portion of the labourers in their employ by paying more according to the amount of work each man accomplished, than by paying day-wages. He concluded by expressing his hope that however they might raise the prizes for stock, they will do so without interfering with the rewards they offered to labourers.

## RIPON AND CLARO AGRICULTURAL SOCIETY.

The show of this society was held on July 7th, for the first time after an intermission of the annual competition for three years. This cessation was solely attributable to the prevalence of cattle plague, and to the influence of measures taken to stamp out the pestilence. At the show on Tuesday there was once more an excellent display of cattle, a class of stock which invariably divides with horses the interest of an agricultural exhibition. The entries of cattle were 71, of horses 196, of sheep 43, of pigs 33, of poultry &c. 185, and of implements 187. Amongst the cattle shown there were some fine specimens of shorthorns; but this is scarcely matter of surprise when a glance at the catalogue revealed the names of so many noted breeders, several of whom reside within the district of the show. Sheep and pigs were both well represented, and the display of implements included everything required by the farmer, the collection of reapers, as might be expected at this season, being especially large. On this occasion, however, the horses were really the leading feature of the show, there being upwards of 100 entries; and seeing that that was the district hunted by the York and Ainsty, and the Bedale packs, every one was prepared for some fine specimens of hunters. Lady Derwent, the winner of the first prize for the best hunter, took the gold medal at Islington.

### PRIZE LIST.

JUDGES.—Horses: W. Godson, Normandy-by-Stowe, Gainsborough; R. Botterill, Garton, Driffield; J. Johnson, Brigham, Driffield; T. Ellerby, Whitwell, York.  
Cattle: H. T. Peacock, Mount Vale, York; T. Wetherhill, Claypath, Durham.  
Sheep and Pigs: T. Stamper, Highfield House, Oswaldkirk; C. Wright, Oglethorpe Hall, Tadcaster.  
Poultry: G. Hutchinson, Prospect House, York; J. O. Jolly, Green Hamerton.  
Implements: C. Clark, Minakip Lodge, Boroughbridge.

### CATTLE.

Shorthorn Bull, two years old or upwards, £5, W. Linton, York; second, £2, J. W. Botcherby, Darlington; third, £1, J. and J. Bulmer, Darlington; highly commended, J. Yorke, Pateley Bridge. Bull, above one and under two years old, £3, Wm. Linton; second, £2, J. Greenwood, Ripley; third, £1, A. Stables, Richmond; commended, R. J. Hudson, Burley-in-Wharfedale. Bull calf, under twelve months old, £2, S. Frank, York; second, £1, J. Smith, Wetherby; commended, T. H. Hutchinson, Catterick. Cow or Heifer, in calf or milk, three years old and upwards, £3, J. Greenwood; second, £2, W. Linton; third, £1, M. Thomlinson, Wetherby; highly commended, J. W. Botcherby, J. Edmondson, and H. Powell, Ripon. Heifer, in calf or in milk, under three years old, £2, W. Wilson, Burton Leonard; second, £1, S. H. Powell. Heifer, one year old and under two, £2, J. W. Botcherby; second, £1, G. Yeats, Ripon; highly commended, J. T. Pearson, Leeds. Heifer calf, under twelve months, £1, R. J. Hudson, Burley-in-Wharfedale; second, 10s., R. Pearson, Hutton.

CATTLE OF ANY BREED, OR A CROSS.—Cow, for dairy purposes, £1 10s., R. E. Collinson, Ripon; second, £1, M. Steel, Wath; third, 10s., G. Yeats, Ripon.

### HORSES.

Brood mare for the field, £2, J. Lancaster, Cleveland; second, £1, T. B. Maynard, Marton-le-Moor; third, 10s., S. H. Powell, Ripon. Brood mare for harness, £2, F. Long, Wetherby; second, £1, W. Clarke, Thirsk; third, 10s., T. Smithson, Ripon. Brood mare for the road, £2, W. Ingham, Ripon; second, £1, W. Garnett, Ripon; third, 10s., J. Burrill, Ripon. Brood mare for the farm, £2, G. Linton, Bedale; second, £1, C. Nicholson, Ripon; third, 10s., M. Tomlinson, Wetherby. Pair of horses for farm purposes, £2, J. Dalton, Ripon; se-

cond, £1, A. Somerville, Ripon. Hunting gelding or mare of any age, silver cup or £10, E. H. Flotmanby, York; £5, B. Nicholson, Leeds. Young gentleman's hunter, £3, W. T. Garnett, Ripon; second, £2, J. Burrill. Roadster, gelding, or mare, £5, F. P. Newton, Malton; second, £1, R. Barker, Malton; highly commended, W. H. Gaunt, York. Pony, not exceeding 14 hands, £1, W. H. Gaunt; second, 10s., C. J. Garnett. Pony, not exceeding 12 hands, £1 T. B. Maynard, Marton-le-Moor; second, 10s., M. Imeson, Masham. Three-year-old colt for the field, £1 10s., R. Green, Bedale; second, 10s., R. Green. Three-year-old filly for the field, £1 10s., W. Clarke, Thirsk; second, 10s., R. Manfield, Thirsk. Three-year-old colt or filly for harness, £1 10s., H. Wells, Kirklington; second, 10s., T. Scott, Broom Close. Three-year-old colt or filly for the road, £1 10s., E. Shepherd, Bedale; second, 10s., C. Knowlson, Thirsk. Three-year-old colt or filly for the farm, £1 10s., C. and W. Kendall, Azerley; second, 10s., A. Harris, Ripon. Three-year-old colt for the field, £1 10s., R. Atkinson, Northallerton; second, 10s., R. Wells, Thirsk. Two-year-old filly for the field, £1, J. Dalton, Ripon; second, 10s., J. Burton, Thirsk. Two-year-old colt or filly for harness, £1, L. Manfield, Thirsk; second, 10s., L. Manfield. Two-year-old colt or filly for the road, £1, W. Wardman, Kirby Overblow; second, 10s., W. Ingham, Ripon. Two-year-old colt or filly for the farm, £1, G. Mangles, Givendale; second, 10s., G. Mangles. Yearling colt for the field, £1, W. W. Gatliff, Littlethorpe Grange; second, 10s., H. Milner, Harrogate. Yearling filly for the field, £1, R. Pinkney, Northallerton; second, 10s., J. Daniel, Skelton. Yearling colt or filly for harness, £1, F. Long, Wetherby; second, 10s., J. Wells, Ripon; highly commended, G. Mangles. Yearling colt or filly for the road, £1, F. Long; second, 10s., C. Knowlson, Thirsk. Yearling colt or filly for the farm, £1, G. Mangles; second, 10s., R. Walker, Boroughbridge.

**SPECIAL PRIZE.**—Two-year-old colt or filly, by Yorkshire Grey, silver cup, value £5 5s., R. M. Bowman, Ripon.

#### SHEEP.

**LEICESTER OR LONG-WOOLS.**—Ram of any age, £2, J. Simpson, Spofforth Park; second, £10s., T. H. Hutchinson, Manor House, Catterick; third, J. Simpson; highly commended, T. H. Hutchinson; commended, J. Heugh, Mudd Fields, Bedale. Shearling ram, £2, T. H. Hutchinson; second,

£1, T. H. Hutchinson; third, 10s., T. H. Hutchinson. Pen of five ewes, £2, T. H. Hutchinson; second, £1, J. Simpson; third, 10s., J. Heugh. Pen of five shearing gimmers, £1, T. H. Hutchinson; second, 10s., T. H. Hutchinson; third, 5s., J. Simpson. Pen of five lambs, 10s., T. H. Hutchinson; second, 5s., R. E. Collinson, Ripon.

**SHEEP OF ANY OTHER BREED, OR A CROSS.**—Scotch ram, of any age, £1, J. Stubbs, West Summersides, Masham. Pen of five Scotch ewes, £1, J. Walker, Qilshaw, Grewelthorpe.

#### PIGS.

Boar of any age, of the large breed, £2, J. Dyson, Leeds. Sow of any age, of the large breed, £2, J. Dyson. Boar of any age, of the middle breed, £2, J. Dyson; second, £1, J. Dyson. Sow of any age, of the middle breed, £2, J. Dyson; second, £1, J. Greaves, Clothierholme; commended, W. F. Stephenson, Bishopton Close, Ripon. Boar of any age, of the small breed, £2, G. Mangles; second, £1, J. Dyson; highly commended, G. Mangles. Sow of any age, of the small breed, £2, J. Dyson; second, £1, G. Mangles; commended, G. Mangles.

#### IMPLEMENTS.

Myers and Sons, Sand Hutton, £2, for portable engine and thrashing machine, 10s., for coulter clover seed drill; G. Malhouse, Ripon, 10s., for assortment; Wm. Mattison, Leeming Bar, Bedale, £1, for one-horse reaper; H. Green, £1, for assortment; J. Ingram, Ripon, 10s., for assortment; W. Waide, Leeds, 10s., for churns; H. and G. Kearsley, Ripon, £1 or medal, for grass mower, £1 or medal, for chaff machine for power, and 16s., for thirteen-row patent chain drill; J. Speace, Ripon, 10s., for assortment; R. Nicholson, 10s., for improved lawn mowing, rolling, collecting, and self-acting delivering machine; J. Wood, South Stanley, £1, for assortment; H. Bushell, for Samuelson and Co., Skeldergate, York, £1, for assortment; J. Todd, Ripon, £1, for assortment; S. T. Stephenson, Stockton-on-Tees and Middlesbro', £2 or medal, for assortment, and 10s. for lime, gravel, and guano screens; W. Smith, Foston, £1, for fourteen-feet self-feeding sheep-rack; E. Sherwood, Bedale, 10s., for one-horse reaping machine; R. Cuthbert and Co., Leeming, 10s., for combined plough and digger; S. Croft, Ripon, £2 or medal, for assortment.

## THE HAVRE INTERNATIONAL EXHIBITION.

Not merely for the sake of the Exhibition now being held here, but for its own, for the objects of interest in all surrounding it, and for its nearness to districts celebrated at once for their fine old towns, rich in historical associations, grand old cathedrals and quaint buildings, and for much that is directly interesting to the practical farmer, the town of Havre is well worthy of a visit by those of our readers who can afford the time to make it. It is easily reached from the metropolis: you leave by the express from Waterloo at nine in the evening, and by means of one of the fine steamers of the South Western Railway, which leaves Southampton immediately after the train arrives from London, you may be amongst the quaint streets, strolling on the fine pier or promenade, or climbing the hill which forms the fine background of the city, in the early forenoon of the next day. Nor are the expenses of the journey likely to deter many; the fare per return ticket is very moderate, and for a few shillings more the journey to Paris and back may be added; and the expense of living in Havre is by no means great.

The title of the Exhibition, the "International Maritime," does not convey what are really the objects to be seen. Originally intended, doubtless, to comprise exhibits only connected with maritime matters, it has extended its objects, and now comprises a great number of objects generally interesting, and specially so to many of

our readers, of which more anon. The Exhibition is situated on a vacant space of ground in the Boulevard of Francis I., and the main or grand entrance, superior in point of design, and infinitely so in point of execution, to the grand entrance of the Paris Exhibition of last year, is within a few minutes' walk of the Hotel de Ville, a very handsome building, and faced by gardens very beautifully laid-out. The plan of the Exhibition—admission to which is one franc, after six o'clock half-a-franc—is very simple. It consists of a quadrangular space, surrounded with a continuous gallery or series of arcades, which contain the objects exhibited; outside of which, towards the quadrangle, eaved or verandahed galleries are placed, these being occupied either by shops for the sale of various articles, or by cafés, restaurants, and other places of entertainment. The quadrangle interior is laid-out very prettily with a series of garden-plots, which contain very beautiful collections of roses and pines. There are also spaces for various erections—as conservatories, kiosks, collections of building materials, machines, and last, not least, a huge aquarium for marine fishes and animals, which is really very interesting and suggestive. Altogether the whole exhibition reminds one very much of the grand one held in Paris last year, and in some respects it is superior. We have said that it is of a much more comprehensive character than was originally con-

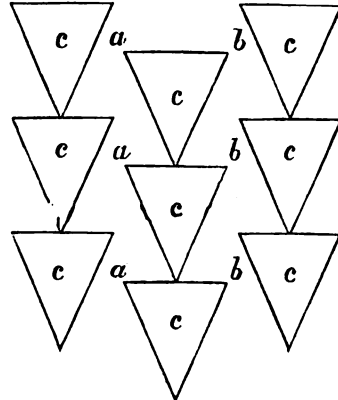
templated, or as its special title would indicate; as for example group first—navigation, which embraces twenty-three classes, as sailing-vessels, their fittings and stores; steam-ships, their construction and machinery—would take in all the objects of a strictly maritime exhibition; but to this group are added others, as for example group second, merchandise and trade products; group third, fisheries; group fourth, fish-culture; and group fifth, supplementary or miscellaneous.

It is obviously with group second with which our readers are concerned, and with certain classes of it, as the classes taking up cereals, flour, seeds, and manures, and agricultural machinery and implements. It is to the last of these that we shall in the first place direct the attention of our readers.

The collection of agricultural implements and machines does not comprise a numerous list of objects, but many of them are good and several worthy of special notice. We shall economize time and space if we go through the various departments in regular order. Near to the circle or hall, and which, by the way, is well worth inspecting as a specimen of elegant decoration, obtained at a small expense, is a shed or annexe, containing a number of agricultural machines and implements, chiefly of foreign make, although a few of our own makers are represented by French agents. There are here several corn-cleaning machines, of which a brief notice will be useful. The first of those we meet with on entering is the one invented and made by Lhuillier, at Dijon. This consists of a rotatory cylinder of wires of different gauge, set at an angle, or inclined; this is supported at the upper and lower extremities by uprights, which are joined at the lower end to the framing of the machine; so that the cylinder is capable of being moved to and fro in the direction of its length, this motion being given to it by means of a connecting-rod worked by a small crank on the main axle or shaft. This vibrating motion is rapid, but extends only through a small space. In addition to this longitudinal motion, the cylinder has a rotatory motion given to it by means of a driving-belt passing over a pulley at the upper extremity of its shaft, this being passed over a pulley on the main driving axle of the machine. The double-motion thus given to the cylinder—a longitudinal and quick vibrating one, in the direction of its length, and a slow circular motion—keeps the grain passing through it in a state of continual movement, during which it is also subjected to a blast of air from a pair of faners. To prevent the substances sticking in the meshes of the wire of which the cylinder is composed, a hammer is provided, which is made to strike the outside at certain intervals.

The corn-dressing apparatus of M. Josse (at Ormeson, canton de Boissy-Saint-Leger, Seine-et-Oise) is distinguished by its simplicity, there being a marked absence of all complicated parts or movements apt to get out of order. In its simplest form, the apparatus consists of a triangular box, the bottom of which is made of wire; the sides, of wood some three inches deep. This is supported by spring uprights fixed at their lower end to a framework, in such a way that by moving the box to and fro a vibrating movement is given to the grain passing over its wired surface. The box is inclined from the upper or broad end to its lower or narrow end or apex. The lower framework carries an upright, which supports the hopper in which the grain to be cleaned is placed, and the grain is delivered into a small vibrating sieve at the small end. The main peculiarity of the apparatus here described lies however in the application of certain shaped blocks of wood or of pieces, forming when placed upon the bottom of the moveable or vibrating box a series of passages, along which the grain passes, and against which the grain is forced or driven by the vibrat-

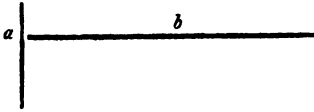
ing action of the screen, in such a way that all extraneous matter is separated from it and passed away while the cleaned grain is kept separated. In applying the principle to a dressing-machine calculated to do a large amount of work, the blocks are placed in the wire screen, and a motion from side to side is given by means of connecting rods and cranks worked from the main axle, to which the motion of the prime mover is given in the usual way. The following rough diagram will explain the mode of placing the blocks upon the moveable screen:



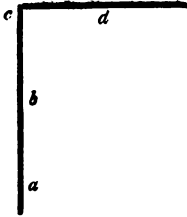
The grain in its passage down and along the parts *a a* and *b b* is driven against the projecting parts and sides of the blocks *c c* and rapidly separated from all extraneous matter. It is only right to say that the work done by this apparatus seems very good, and that a very large number of apparatus has been sold. The same remark applies to the form of corn-dressing machine exhibited close to that of M. Josse, under the name of the "American machine," and which is well known to our readers as that of Child's. It is made in France by Messrs. H. and G. Rose frères, engineers at Poissy (Seine-et-Oise), and who have, we believe, done a large business in connection with it. As our readers are aware, the main feature of this machine is the employment of a double-blast, or rather of two currents of air—one of which is on the plenum or full, the other on the vacuum or exhaust. The exhaust serves to keep the grain suspended, and is so regulated that all the light grains are passed away, while the heavy or best grain are retained by themselves. This regulation of the force of the exhaust is secured by means of a valve, which is operated upon by a lever and weight. Next to the American machine is the decortiating apparatus, made by the celebrated engineers, J. F. Cail et Cie. and Barrabe, Quai de Grenille, Paris. This consists of two metal cams, provided with projecting ribs on their outer and inner surfaces; one cam working within the other, the latter being fixed. A very neat application of Robertson's frictional gearing is applied to this machine, to work the revolving cam, in place of the bevil gearing usually employed.

There are several collections of mill-stones of the class for which the French mills are so famous, and a few examples of mill construction. In this department there is exhibited by C. Touaillon fils, Boulevard Sebastopol, Paris, a small apparatus for dressing mill-stones. Our readers are aware that a good deal of attention has been lately directed to this class of mechanism, notably through the remarkable success—pecuniary if not mechanically—which has been met by Golay's patent, which was exhibited for the first time publicly at the Paris Exhibition of last year. In Golay's patent machine the cutting-tool is a hard Brazilian diamond, and is

actuated by machinery of a very ingenious character. In M. Tonnillon's apparatus, now to be described, the cutting-tool is a hard-faced steel chisel (*a*), about one-inch broad. This is worked hammer-fashion, being fixed vertically (*a*) in the slotted end of a horizontal lever (*b*); this lever



passes through and is fixed by a screw in a slot (*c*) at the upper end of a stud which is carried by a horizontal lever



(*d*), supported and carried by the frame or carriage of the machine; the hammer-chisel (*a*) is worked by hand, the hand grasping the lever (*b*) near the chisel (*a*), and lifting it up and down, inflicting through the medium of its sharp edge a "crack" or line on the face of the stone. The carriage of the apparatus is placed upon the millstone in such a position as that the face of it will be parallel to the line or crack to be dressed or made in the millstone face; by means of a simple arrangement of screw, the change of position of the chisel as it cuts the "crack" is very easily made.

Golay's millstone dressing-machine to which we have above alluded, although not exhibited in the same place as the apparatus just described, it being in the inner gallery in the machinery-in-motion department, we may as well describe it here. This machine was first exhibited in Paris, in the Exposition of last year, and it has since attracted a large amount of attention in this country from the very large sums which have been obtained for licences for working it. These sums have been so large that the purchasers of the patent for this country have made a sum considerably exceeding one hundred thousand, some of the licences sold having got up to the large figure of £21,000. Our readers will be pleased, therefore, to receive here a description of a machine which has taken so fortunate a pecuniary position. The machine is of small size, neat and compact in arrangement, and easily adjusted to the millstone which it is employed to dress. Unlike the form of apparatus last described, the whole work is done by mechanism, no manual labour being required. The cuts or cracks or lines made in the face of the mill-stone are cut by means of a diamond, fixed in the face of a small disc, to which a rapid motion of rotation is given. The mode by which the diamond is fixed in the disc is very ingenious. The disc is in reality made up of two discs, which are screwed on to the axle, and bear up against a shoulder in the same. On the face of the discs small recesses are cut at intervals: these are cut from the circumference, a short way towards the centre, so that when the two discs are placed together, cells are formed opening to the periphery of the disc. The diamond is placed in one of the cells, and when the discs are screwed tightly up, is held fast, a part or point projecting from the periphery. The means by which rotation is given to the disc with its cutting diamond point, and by which it is moved along so as to cut the proper line required, may now be described. A frame is connected with a central socket pillar, which passes into the end of the axle of the mill-stone to be dressed. From this central pillar

three arms radiate, provided at their extremities with screws, which pass through apertures, and press up their larger ends upon the face of small plates of iron, which in turn rest upon the mill-stone. By raising or lowering the screws, the frame of the apparatus is levelled [as desired]. The carriage which carries the rotary disc or tool-holder, slides out and in towards or from the central pillar, and consequently over the mill-stone surface, in a dove-tailed guide, passing along a horizontal arm, which is connected with the framing, and which arm is adjusted by a bolt which is passed into a curved slot in the support. By this arrangement the arm can be moved in an arc of a circle at will, and the tool-carrier moved out and in towards the circumference as desired. The upper part of the central socket or pillar is formed into a socket or "step," which carries a small vertical shaft, to which rotation is given by means of a small pulley, worked by the prime mover. The vertical shaft carries another pulley, the belt or end of which passes over a pulley at the end of a bracket, which is carried by the central pillar, and which is socketed in the same, so as to be able freely to move. The proper tension is kept on the cord or belt by means of a counterpoise placed at the end of the socket or jointed bracket. From the pulley at the end of the bracket a cord or belt passes to the axle of the rotatory disc or tool holder and round a pulley fixed thereon. The carriage which carries the tool-holder is capable of having the necessary motion along the slide or lever by means of a bell-crank lever. While the tool-holder is revolving with great rapidity, the diamond on its face cutting the line on the mill-stone by means of the bell-crank lever, the carriage is moved along the slide so as to enable the tool to operate in the direction of the line of cut required. When the line is finished the tool is then moved so as to draw a line parallel to the first: this is effected by making the tool-holder move in a slide, which is carried by the horizontal arm, this slide being at right angles to the direction of the slide passing from the centre to the circumference. To complete the parallelism of the lines, the support carrying the arm is moved in the curved slot, a short distance, and fixed by the screw. The machine effects its work in a very complete manner, not only doing the grooves or cracks very sharply and with precision, but a large saving of time is effected. Thus taking the time of dressing a millstone in the ordinary way by hand at nine hours, this machine can do the work completely in two hours or in two hours and a-half, which is equivalent to a large saving in the working year.

E. Goudouin, of Boulevard Poissonnière, Paris, exhibited specimens of his wire-work fences, and an exceedingly neat hen-house of galvanised iron-wire. M. Goudouin has supplied the Zoological Gardens in Paris and those of the Society of Acclimatization at the Bois de Boulogne with the various iron enclosures. Some of the wire-workers might with advantage take a lesson or two in the designing of poultry-houses and sheds, aviaries, &c.; some of the designs met with abroad, for these, being exceedingly elegant, and must have been designed by special artists. The same also may be said as to erections in wood suited for gardens, of which there are several specimens in the park of the Exhibition, amongst which we may specially notice the "kiosk" made by M. Bouvière, of Harfleur; not only for the elegance of the general design, but for the beauty of the cut wood and fret-work in which it abounds, this structure is worthy of the special notice of the visitor. It is occupied as a confectioner's stall; but if it had a place in the grounds of some of our rich men, we can fancy him a very much envied man for having a structure so beautiful.

There are a few machines used in the preparation of



flax, sent from the North of France, where that plant is grown to a large extent, and made into fabrics. M. Pareyelt, of Bergues (near Dunkirk), sends a very simple yet efficient form of flax-breaker. This resembles very closely the paddles of a steamer; but the floats, in place of being horizontal and between two rings of iron, are placed so as to project from the face of a single ring, and to present a flat striking edge to the flax which is held to their action. The central shaft carries two rings thus provided with beaters, one ring at each end, a space being left between them.

Edmund Garmeson, Quai de Billy, Paris, has a pretty extensive collection of agricultural machines and implements in this annexe, the majority of them being of foreign design and make, although he has some of English makers, for many of whom M. Garmeson is agent for France. The collection at this point will afford the visitor from England a fair opportunity to contrast the machines and implements of his own country with those of France, and the points of contrast will, we feel assured, be striking enough. On this point we do not deem it necessary to repeat what we have already taken the opportunity to say in the first papers which we have had the privilege to give in this Journal, under the title of "Novelties at the Paris Exhibition of 1867," and to which we therefore refer the reader who cares to know what is there said upon the point now being referred to. A few practical exemplifications of it may be met with in the annexe now being dissected, as for example one in the corn drill of M. Jacquet Rovillard, Arras. This machine has three carrying wheels, one of them being in front between the shafts which project before the body of the apparatus; the axle of this front wheel carries two eccentrics, which move connecting rods carried back to the corn-delivery part, and which work its mechanism. The delivery of the corn is regulated by a set screw to each coulter part—a very tedious method, and one open to extreme irregularity in the adjustment of the whole.

The French, as our readers are aware, have paid much attention of late to apparatus designed to dry and preserve grain. Some of those lately introduced are very complicated, at least of gigantic dimensions, and of course costly. A very compact arrangement is met with in this annexe, the invention of M. Ballarieux, 52, Rue des Prés, Havre. It consists of a cylindrical receptacle, the air in the interior of which is heated by a central stove or fire-place, the feeding part of which projects from the lower and central part of the cylinder. The top of the cylinder is provided with sides and ends, which forms a species of hopper, the bottom of which is the heated and upper portion of the cylinder. The grain to be dried is in the first instance placed in this hopper, so as to give it a preliminary drying. When sufficiently long in this, it is passed out by a shoot into baskets, and the contents of these are next passed into a shoot or hopper at the end of the machine. This hopper conducts the grain to a helical screw placed in the interior of the cylinder, the revolution of which is effected by means of a driving pulley on the main shaft, worked by wind or power. The shaft of this screw is hollow and perforated with holes, and a stream of hot air is forced through it so as to fill the interior, and act upon the grain. The heated air is obtained by forcing, by means of a small fan at the other end of the machine, a current of air through the small furnace, which, as above described, is placed underneath the main cylinder; the tube which carries this heated air being terminated with a nozzle projecting into the open end of the hollow axle of the screw. As long as the screw is made to rotate in one direction, the grain in its interior is kept in, it being tossed to and fro and subjected to the hot air; but when the screw is

turned the reverse way, the grain is passed out by a shoot at the end.

Glancing at a collection of cider-presses (Normandy is celebrated for its cider) and at a compact corn-dressing machine, flour-mill and flour-dressing apparatus combined, we pass on to the machinery gallery in the main range, and take up the notice of such objects which we there meet with. The agricultural machines here met with are principally straw-cutters, root-cutters, thrashing-machines, and portable engines. Of these latter, the three noteworthy are (1) the engine of MM. Weyher, Lorean, and Co., of Paris; (2) that of MM. Albaret and Co.; and (3) of M. Gerard. We notice that of Weyher and Co. first, not because of any excellence it possesses, but rather as it affords a somewhat remarkable contrast to the engines of this class of our makers. The first point it presents is the heaviness, and shall we say clumsiness, of the whole; as regards the mere weight, we should say it is not far off being double that of engines of similar power made here. The working arrangements are very defective; for example, to get at the starting-handle the engineer must either climb up by one of the wheels or have something on which to stand to raise him up to its level, so high above is it placed. The engine is secured to a heavy cast-iron bed-plate, resting on the boiler; none of the parts being covered by the boiler, as with us. The boiler itself is on the Cornish principle, not well proportioned; it extends to the end of the engine, and the smoke and heated air are brought back to a smoke-box near the fire-door, by return flues or tubes, after the fashion of Carrett's portable engine, of Leeds. The boiler is provided with what appears to be a steam dome, but is in reality a water-heater, the exhaust-steam pipe passing through it. The engine of MM. Albaret and Co. is a much lighter and better proportioned machine, although in these respects it does not come up to our standard of efficiency. The mechanism by which any required degree of expansive working of steam is obtained may be noticed here. The eccentric rod is jointed at its extremity to the upper end of a curved link, the lower of which is well jointed to a stud fixed to the side of the boiler. This curved link carries a small sliding-block, to which is jointed the end of a lever which is carried forward to the valve-check and works the valve. This valve-rod is provided with a slotted part near the curved link, before named, and through this slot the end of a lever projects; this lever is provided with a screw and hand-wheel near its curved end, at which point it is jointed to a stud fixed to the side of the boiler. By turning the hand-wheel the screw is reversed and lowered, and with it the slotted part of the valve-lever; this causes the sliding-block to rise or fall upon the curved link, to the end of which the eccentric rod is jointed. By this arrangement the throw of the valve-rod is altered as desired. M. Gerard, Vierzon (Cher), exhibits a portable engine of which the design and workmanship afford a good contrast to the one of MM. Weyher and Co. alluded to above. M. Gerard has introduced a modification of the ordinary governor, which may be described here. The lower part of the vertical lever which carries the jointed levers and balls is provided with a third ball, of much larger dimensions and heavier weight than the ordinary balls. Immediately below this counter-weight is placed the stud which carries the end of the lever which communicates with the throttle valve. The action of the heavy or third ball is direct upon the ordinary pendulum balls of the governor, preventing them from flying too rapidly out, and thus stopping or slackening the speed of the engine. But in order to change at will the speed of the engine, M. Gerard adds a fourth ball to the apparatus, this being placed upon the lever which actuates the throttle valve, and it is made capable of sliding to-and-fro

upon this, so as to approach or recede from the centre of the lever and nearer to or further from the vertical lever which carries the governor. When this fourth ball is brought near the centre lever the engine is made to quicken its speed, and by taking out the ball further from the centre the engine is slackened in speed. M. Gerard exhibits a straw-cutter, in which there is an ingenious arrangement for altering the length of cut, and for regulating the delivery of the straw to the cutting-knives. The shaft of the fly-wheel, to which the knives are fixed, is parallel to the feed-box, and carries at the extremity, farthest from the fly-wheel, an elliptical-shaped cam, which has upon its surface paths or faces of varying diameter. Working in contact with one of the faces is a small force-wheel fixed to the end of a lever, and capable of turning upon a small stud at its end. This lever is jointed at its other end to a stud fixed to the side of the machine, and forms half of a bell-crank lever, the other half of which stands vertically; the extremity of this is provided with a lever which is carried forward and terminated with a pawl which takes into a ratchet-wheel keyed on to the upper feed-roller. The revolution of the elliptical cam, with its varying path, gives a to-and-fro motion of the bell-crank lever, which, by means of the pawl at its furthest extremity, moves the ratchet-wheel of the feed-roller a certain portion of its revolution, and thus delivers a certain length of material to be cut. By changing the position of the friction-wheel at the end of the bell-crank lever near the cam, so as to work upon one or other of the paths of the cam, certain degrees of change of throw of the bell-crank lever are obtained, and by consequence different lengths of cut. For all practical purposes a variety of lengths of cut are not required, two being found quite sufficient, and we know of no arrangement so simple and efficient by which these two lengths can be obtained as that recently introduced by Richmond and Chandler, a specimen of which we regretted not seeing at the Exhibition.

Wilson & Co., of Vauxhall Iron Works, London, exhibit several forms of donkey steam-pumps for supplying boilers and pumping water. Messrs. Wilson have introduced some improvements in the arrangement of these pumps, which are on Brown's patent, which we fully described last year. Our readers may recollect that the connecting rod in Brown's pumps was bent; this arrangement had the tendency to throw an indirect strain upon the rod and the crank-pin in the face of the flywheel. Messrs. Wilson obviate this, and secure other advantages by their very simple, and valuable because simple, arrangement. To the pump-ram a stud is cast, projecting at right angles from it, and working in a vertical guide. The stud is brought sufficiently forward to admit of the lower end of the connecting-rod to be jointed to it, in a line with the crank-pin on the flywheel above, thus securing a direct line of action. By simply bringing the flywheel shaft, and the eccentric cam which works the steam-valve, outside the steam-crank or casing, every facility for oiling is obtained.

M. Mezeline, of Havre, exhibits a steam-pump, on the principle of Worthington's American pump, the distinguishing feature of which is the absence of cranks, fly-wheel, and shafts. These are dispensed with by simply placing a pair of steam-cylinders at one end of the frame horizontally, and parallel to one another, and the piston-rods of which are connected directly with the rams of two pumps placed at the other end of the frame. The valves of the cylinder are worked by levers from the piston-rod of the other cylinder. M. Bowden, of Paris, exhibits his steam-pump, in which the steam-cylinder, and the pump, or ram, are placed at each end of the frame, and both horizontally; the ram is worked from a slotted link placed between the cylinder and the ram, the

piston-rod being attached to one piece of the link, or ram-plunger, and the other side the flywheel-shaft is put to a double crank, and connected at each end to the sides of a block which slides in one link. As the crank revolves the block rises and falls in the link, and the parallelism of the piston-rod and pump-plunger are preserved.

Messrs. Gwynne, of the Hammersmith Works, London, exhibit their steam-engine and centrifugal-pump combined. The whole is so well arranged, and the parts constructed with such nicety, that the engine can run at the rate of no fewer than nine hundred revolutions per minute, without any shaking or vibration of the foundation or base-plate. Working at 414 revolutions per minute, it will throw 500 gallons per minute to a height of 30 feet. The whole occupies but a very small space—about 3 feet 5 inches by 3 feet. Steel is employed, to a large extent, in its construction: as, for example, the piston and piston-rod (which are cast in one piece), the main shaft, the crank disc, or face-plate, and the crank-pin, are also in one piece of Bessemer steel. Messrs. L. Neat and L. Dumsut, of Paris, exhibit specimens of their centrifugal pumps, one of which is employed in pumping up the water from the sea for the supply of the gigantic marine aquarium in the park, which by the way is a special object of attraction to the visitors, and worthily so. An hour or two may be spent, both pleasantly and instructively, in examining the various departments of this aquarium. Contrasting with the compact centrifugal pumps, is the huge chain-bucket pump or lifter, which is exhibited in the park, with portable engine attached, by M. Saint Romas, of Paris. For many situations this form of water-lifter may be used with advantage: it seems well made.

Closely connected with the question of water supply is that of appliances used in distributing it; as for example, water meters and pipes. An excellent form of water meter—probably the best yet introduced—is that invented by Mr. Worthington, of America. A meter on his principle is at work in the Exhibition. There are two cylinders employed in the meter of the same capacity, laid side by side and horizontally; the valves of one cylinder being worked by means of connecting rods and links attached to the other cylinder, the motion of the cylinders being in the reverse direction, that is as one goes out the other is going in. The cylinders work with a very small pressure or head of water, as low as two ounces to the square inch, and they will register accurately with even the smallest escaping flow. As a rule water meters are not much to be depended upon for extreme accuracy of working; but the one under notice seems to fulfil all the requisite conditions in a very satisfactory manner. As regards the distributing pipes for water supply, a very interesting stand is that which contains numerous specimens of the tin-lined lead pipes made upon Hamon's system. Our readers are all well acquainted with the evils arising from the action of certain waters upon lead, creating a substance which, if partaken of regularly, brings about many complaints of a peculiarly distressing character. This has been well-established by many eminent medical men, who have had their attention directed to the matter through the occurrence of accidents—if we may so term them—arising through the use of water passing through lead pipes. To obviate the dangers arising from the use of leaden pipes, many attempts have been made to introduce another material—or to use in conjunction with the lead pipes another material not acted upon by the water—as tin, which was coated upon the lead. But in practice the coating was never efficiently done; while the use of pure tin pipes was precluded from their great expense as compared with lead. M. Hamon has overcome all the difficulties attendant upon the use of tin in conjunction with lead by a very

ingenious process, by which a very thin but perfectly solid and homogeneous tin pipe is incased in, or enfolded by, a lead pipe. The two pipes are produced simultaneously by driving, by enormous hydraulic pressure, the lead and tin over two concentric rollers or matrices; and the two metals are in complete coherence, and the thickness throughout the whole length of pipes in both materials of absolutely uniform thickness. One great advantage in the use of these tin-cased pipes for water-closet and scullery-sink purposes is that refuse matter does not adhere to the interior tin pipe. Those of our readers who are practically acquainted with the evils arising from the rapidity with which the lead pipes in the above appliances get coated with foul matter, will be able to appreciate this advantage of the tin-cased lead pipes which we have now described.

We shall conclude our notice of the Havre Exhibition by describing a few odds and ends met with in the galleries. And first as to a cow-milking apparatus, the invention of M. Liverbardon, Rue de Provence, Paris. We cannot say that we are an ardent believer in the milking of cows by mechanical means, certainly not in such as aim at effecting it by such means of a complicated character. The majority of farmers believe, and they have at least a great deal to say on their side of the question, that milking the cow, like some other operations in practical farming, is best done by hand, and that all complicated apparatus to operate this should be avoided. Certainly the apparatus now before us has not this charge of complication of parts to go against it. Nothing can indeed be more simple; it consists of a small silver tube, which is simply inserted in the orifice of the teat, and which serves as a tube by which the milk vessels completely empty themselves. The apparatus has been tried by several eminent Continental agriculturists, who speak highly of the completeness of its action and the ease with which it can be used; and whether the fact will have any weight with our readers or not, which will depend upon the views they hold of the prize system, the appliance has had a prize awarded to it at the agricultural show held at Amiens last year. Before inserting the tube, the teat should be filled or swollen out with milk brought down by hand; the tube is then inserted gently, giving it on its entrance a slight turning motion which will facilitate its passage into the orifice of the teat.

M. Masson, of 10, Avenue du Cimetière du Nord, Paris, exhibits an apparatus by which the quantity of corn used per day in stables is measured with extreme accuracy. For large establish-

ments, where waste if not speculation goes on, in many cases to a large extent, we believe such an apparatus would soon pay itself. The corn is freed from the apparatus by withdrawing a flap acted on by a handle placed under the dials or indicators, falling into a receptacle placed beneath, from which it is taken as required. The corn is supplied from a room above, under lock and key, and all supplies required must pass through the apparatus and the quantity recorded.

There are several forms of lubrication in the Exhibition, one or two of which we shall notice briefly here. The first is that made by De La Coud, Rue Saint Lazare, Paris, and which consists of a ball of thick glass, provided with a brass collar at its opening; this is embraced by a brass cover, which carries a small projecting tube a short distance on either side of the cover. This is closed at the end which remains in the bulb of glass when the cover is put on; but a small aperture is made in the end, as well as one or two small holes made in the side of the tube below the end. The end, with its perforation, is formed like a cup, so that it can be taken off when the tube requires cleaning. The glass ball being filled with oil, and the cup and tube put on, the whole is reversed, the lower end of the tube passing down the oil-hole in the journal or shaft-pedestal, and allowed to rest upon the shaft or journal. As this revolves, the oil is drawn out of the bulb drop by drop, and is replaced by air which passes up the tube, and through the holes in it, into the upper part of the glass. The more quickly the shaft revolves the more rapidly is the oil withdrawn. A method of lubricating the working-parts of steam-engine cylinders recently introduced is that of mixing the steam supplied to the cylinder with fatty matter. A mode of doing this, as patented by Morton and Wilson, and sold by A. Robinson and Co., of Canning Dock, Liverpool, is exhibited in the gallery. It is an apparatus of a very simple character, being merely a receptacle which is to contain the fatty matter, as oil or of soap melted, and which is placed upon the steam-pipe leading to the cylinder. By turning the middle of the indicator the steam is admitted to the interior of the receptacle, and passing to its upper part, is there condensed into water; this being heavier than the lubricating material, descends to the bottom, and displaces it; the lubricating material, after a short interval, begins to descend, drop by drop, into the steam-pipe, where it mixes with the steam, and is carried forward to the various working-parts. The greasy steam thus formed acts as an admirable lubricant of all the parts.

## BRUSSELS INTERNATIONAL AGRICULTURAL EXHIBITION.

The exhibition of the Agricultural Society of the Province of Brabant, held in Brussels last week, was formally opened on Saturday, the 20th June, by the King and Queen in person, under an almost tropical sun, with all the pomp of military display so loved on the continent, amidst a crowd of Belgian nobility. The exhibition was international as far as implements and machinery were concerned, but confined to the province of Brabant as regards animals; while without the presence of English manufacturers the show of implements and machinery would have been poor; and of course our exhibitors were very successful in the competitive trials.

Still the show of machinery and implements was very large, numbering nearly 1,000 machines in all. England was represented by 17 exhibitors, with about 120 different articles of their manufacture. Amongst the English exhibitors were the following: J. and F. Howard, Ransomes and Sims, Aveling and Porter, Ruston and Proctor, Marshall, Sons, and Co., E. B. and F. Turner, Richmond and Chandler, Horneby and Sons,

and Woods and Cockledge. The implements were all placed in rotation—that is, the ploughs of all exhibitors were near the entrance; afterwards harrows, scarifiers, rollers, drills, reapers; and lastly steam-engines and thrashing-machines—an arrangement which suited the juries very well, but entailed a vast amount of labour to the staff of any exhibitor who had more than one machine. The juries were composed of well known men, and amongst them we may mention James Howard, of Bedford, for drills; Thomas Ritson, of the Luxembourg Railway, for steam-engines; Messrs. Albaret, the celebrated French implement manufacturers, for thrashing machines; Professor Ran, of Carlsruhe, for ploughs; and the juries gave each machine a fair and patient trial, devoting nearly a week to their investigation. The principal prizes to English firms were awarded as follows: Steam-engines, first prize Ransomes and Sims; second, Ruston and Proctor; third, Marshall, Sons, and Co. Steam thrashing-machines, first prize, Ransomes and Sims; third, Ruston and Proctor, also a third prize for

small thrashing-machines to Marshall, Sons, and Co., and E. B. and F. Turner. Traction-engines, first prize, Aveling and Porter. Ploughs, first prize, J. and F. Howard; another first, Ransomes and Sims; and "Prize of perfection" for turn-wrest plough, Ransomes and Sims; prize for potato plough, J. and F. Howard. Haymakers, first prize, J. and F. Howard; horse-rakes, first prize, J. and F. Howard; second, Ransomes and Sims. Drills, first prize, general purpose drill, Smyth and Sons, Peasenhall. First prize manure drill, Smyth and Sons, Peasenhall. The prizes for chaff-cutters, bruising-mills, turnip-cutters, oat-bruisers, and horse-gears, were in most instances awarded to Richmond and Chandler, E. R. and F. Turner, Woods and Cockledge, and Bental.

The show of cattle was excellent, the large Brabant horses carrying off the principal prizes; the Shorthorn and Dutch cows also attracted a great deal of attention from cattle breeders; and there were some good Southdowns, Oxfordas, and cross-bred sheep. Mr. Charles Howard was requested to go on as a judge of Shorthorns, but was unable to act.

Many prizes were only awarded to new inventions or improvements. Medals, scattered in profusion, were of "vermilion" or silver gilt and bronze, handsome in appearance; one Eng-

lish exhibitor took home nearly a dozen of them. As is usual in continental shows, a lottery was established for the purpose of purchasing standard implements and machinery selected by a special committee, by which means a certain number of good implements and machines are certain to be left in the district. This Brussels lottery was particularly successful, and a placard "Acquis pour la lotterie" was found on a great many English implements and machines. We regret to say that some of the foremost British exhibitors ran their engines and thrashing machines on Sunday, though, as far as we could learn, to little purpose, no sales being effected. We commend this fact to the notice of the Lord's Day Observance Society. The President of the Brabant Agricultural Society, Mr. Leclercq, who organised the exhibition, received from the hands of the King the decoration of "Officer" of the order of Leopold, which is analogous to the French Legion of Honour. A banquet in honour of the jurors was held on the evening of the 22nd instant, when the healths of the King and Queen, Prosperity to the Society, Health of the President, Thanks to the Home and Foreign Exhibitors, were received with great enthusiasm, the hips and hurrahs of the English exhibitors being particularly noticeable. The speeches were plentiful, and good.

## THE SUPPLY OF FRESH MEAT.

TO THE EDITOR OF THE MARK LANE EXPRESS.

SIR,—As there is much misconception about the proportion of Home and Foreign Supplies of Meat, I have prepared a short calculation on the subject, which is founded entirely on Mr. Dudley Baxter's estimate of the quantity of cattle and sheep killed in this country. That estimate I consider a low one—it is his, not mine—but it shows how little we yet depend on the foreigner for our fresh meat. The number of foreign Cattle imported during the past eight years average 170,000; but, as I think they may increase, I have put up the numbers to 200,000. I don't suppose that the quantity of Sheep and Pigs will alter materially, and

have therefore taken the actual average of the past eight years' importations.

Mr. Dudley Baxter is the agent for the cattle importers and butchers, and leads the opposition against the Metropolitan Cattle Market Bill. In order to make the case of the poor worse than it is, in his pamphlet Pigs are ignored; but I have supplied that deficiency, and give my rough estimate to my brother-farmers for what it is worth.

I am, Sir, your obedient servant,

CLARE SPWELL READ.

House of Commons, 3rd July, 1868.

### PROPORTION OF HOME AND FOREIGN SUPPLY OF FRESH MEAT TO THIS COUNTRY.

	Number slaughtered Annually.	Proportion of Foreign to Home.	Weight per Carcase in lbs.	Number of lbs.	Proportion of Foreign to Home Supply in lbs.	Price per lb.	Value of Home and Foreign.	Proportion of Value of Foreign to Home.
<b>CATTLE</b> (INCLUDING CALVES)								
Home.....	2,500,000		580	1,400,000,000		7d.	£ 40,833,333 6 8	
Foreign.....	200,000	One-12th	500	100,000,000	One-14th	6d.	2,500,000 0 0	One-16th
<b>SHEEP &amp; LAMBS.</b>								
Home.....	12,000,000		58	672,000,000		7d.	19,800,000 0 0	
Foreign.....	500,000	One-24th	50	25,000,000	One-27th	6d.	625,000 0 0	One-31st
<b>PIGS.</b>								
Home.....	4,500,000		90	405,000,000		6d.	10,125,000 0 0	
Foreign.....	50,000	One-90th	90	4,500,000	One-90th	5½d.	103,125 0 0	One-98th

## SUMMARY.

### PROPORTION OF HOME TO FOREIGN SUPPLY OF MEAT.

HOME.	Numbers.	Weight in lbs.	Value.	FOREIGN.	Numbers.	Weight in lbs.	Value.
Cattle.....	2,500,000	1,400,000,000	£ 40,833,333 6 8	Cattle.....	200,000	100,000,000	2,500,000
Sheep.....	12,000,000	672,000,000	19,800,000 0 0	Sheep.....	500,000	25,000,000	625,000
Pigs.....	4,500,000	405,000,000	10,125,000 0 0	Pigs.....	100,000	4,500,000	103,125
Total*.....	19,000,000	2,477,000,000	70,558,333 6 8	Total*.....	800,000	129,500,000	3,228,125

\* The Foreign is One-twenty-fourth of the NUMBERS, One-eightieth of the WEIGHT, and One-twenty-third of the VALUE of our Home Supplies.

## ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

**MONTHLY COUNCIL, Wednesday, July 1.—Present:** the Duke of Richmond, K.G., President, in the chair; the Earl of Powis, Lord Bridport, Lord Chesham, Lord Kesteven, Lord Portman, Lord Tredegar, Lord Vernon, Lord Walsingham, Sir Massey Lopes, Bart., M.P.; Sir A. K. Macdonald, Bart.; Sir T. Western, Bart.; Sir Watkin W. Wynan, Bart., M.P.; Mr. Amos, Mr. Barnett, Mr. Cantrell, Colonel Challoner, Mr. Brandreth Gibbs, Mr. Hornsby, Mr. Jonas, Colonel Kingscote, M.P., Mr. Milward, Mr. Pain, Mr. Randall, Mr. Ransome, Mr. Read, M.P.; Mr. Rigden, Mr. Sanday, Mr. Shuttleworth, Mr. Stone, Mr. Thompson, Mr. Torr, Mr. Turner, Mr. Webb, Mr. Wells, Mr. Jacob Wilson, Professor Simonds, and Dr. Voelcker.

The Duke of Sutherland, K.G., and Lord Kenlis were elected Governors of the Society.

The following members were elected:—

Agar, Thomas, Lower Hastings Street, Leicester  
 Agar, William, 5, Upper King Street, Leicester  
 Allen, John, Ashfield House, Knighton, Leicester  
 Angrove, Thomas Cooper, East Leake, Loughborough  
 Ardron, John, Queniborough Cottage, Leicester  
 Arkwright, Arthur W., Broughton Ashley, Lutterworth  
 Ashby, John W., Knaptoft, Husband's Bosworth, Rugby  
 Bantoch, Thomas, Merridale House, Wolverhampton  
 Bellairs, George Clarke, The Newark, Leicester  
 Boddington, Henry, Monton House, Eccles, Lancashire  
 Brewster, John, Stretton Mill, Penkridge, Staffordshire  
 Bryan, Thomas, Seaton Lodge, Uppingham  
 Bard, Thomas Augustus, Burcot, Wellington, Salop  
 Barley, John Henry, Leicester  
 Chapman, W. Henry, Humblestone, Leicester  
 Cheate, Thomas Farmer, Dosthill, Tamworth  
 Clark, J. W., 84, Belvoir Street, Leicester  
 Coleman, G. W., Great Glen, Leicester  
 Crawley, J. Rogers, Melchbourn, Higham Ferrers  
 Crawley, Lewis, Knightley House, Holbeach  
 Crickmore, Robert, Ingloss, Loddon, Norfolk  
 Crickmore, William, Seathing, Brooke, Norfolk  
 Croeland, James, Clumber Street, Nottingham  
 Day, Neville, Easton, Stamford  
 De Wend, W. Fenton, Croft Lodge, Leominster  
 Ellis, Alfred, Belgrave, Leicester  
 Fowler, Lawrence P., Little Bushey Farm, Bushey  
 Fyers, Colonel, W. A. C. B., United Service Club, S. W.  
 Gamble, Henry Thomas, 28, Lincoln Street, Leicester  
 Goddard, Joseph, Stoneygate, Leicester  
 Grealey, Sir Thomas, Bart., Cauldwell Hall, Burton-on-Trent  
 Harris, George Shirley, Leicester  
 Harris, John Dove, Knighton, Leicester  
 Harris, Samuel, Westcotes, Leicester  
 Hasley, Joseph Barber, Leicester  
 Heathley, James Henry, Engleton Hall, Penkridge  
 Henty, Robert, Rothley Temple, Loughborough  
 Hume, Charles T., Waterloo Terrace, Bridgnorth  
 Ingram, Thomas, Wigston Magna, Leicester  
 Leadbeater, John B., Thorpe Sachville, Melton Mowbray  
 Lott, John, 156, Victoria Park Road, Hackney, Middlesex  
 Lowe, Thomas Foster, South Croxton, Leicester  
 Macfarlan, Walter, Bretton Lodge, Wakefield  
 Moore, Henry, Calverton, Nottingham  
 Moore, John, Calverton, Nottingham  
 Murray, Gilbert, Elvaston Castle, Derby  
 Munn, E. B., Royston  
 Preston, Benjamin B., Leicester  
 Preston, William, Leicester  
 Pullen, Richard, Shackerley House, Albrighton, Salop  
 Quenby-Ashby, Rev. E., Quenby Hall, Leicester  
 Reeve, William Napier, Leicester

Richards, William, Belgrave, Leicester  
 Richardson, J. G. F., Houghton House, Knighton, Leicester  
 Rider, Thomas John, Kenwick, Shrewsbury  
 Roberts, Edward, Berden Hall, Bishops' Stortford  
 Rodgers, Herbert, Gilmorton, Lutterworth  
 St. John, Beauchamp Mowbray, Melchbourne, Higham Ferrers  
 Shaw, George, Leicester  
 Simpkin, Thomas Henton, Hoby, Leicester  
 Sing, Henry, Swancote, Bridgnorth, Salop  
 Sing, William, Newton, Bridgnorth, Salop  
 Smith, Henry, The Grove, Cropwell Butler, Bingham, Notts  
 Stark, W. P. W., Knaptoft Hall, Rugby  
 Strutt, Hon. Arthur, Duffield, Derby  
 Strutt, Hon. Frederick, Kingston, Derby  
 Suffield, Lord, Ganton Park, Norwich  
 Tailby, W. Ward, Skeffington Hall, Leicester  
 Taylor, John, Leicester  
 Towgood, Hamer, Little Shelford, Cambridgeshire  
 Towgood, Edward, jun., Sawston, Cambridge  
 Watt, William, jun., Leicester  
 Whitwell, John Jenkins, Silsworth Lodge, Crick, Rugby  
 Williams, Henry, Alma Farm, Truro, Cornwall  
 Wood, John, Fridmore, Nottingham  
 Wright, Thomas, Wanlip, Leicester  
 Wright, William, Shoby Priory, Melton Mowbray  
 Wynan, Richard, Crickett, Eilemsere, Salop.

**FINANCES.**—Major-General Lord Bridport, chairman, presented the report, from which it appeared that the secretary's receipts during the past month had been duly examined by the committee, and by Messrs. Quilter, Ball, and Co., the Society's accountants, and found correct. The balance in the hands of the bankers on the 30th June was £1,340 9s. 9d., and £2,000 remains on deposit. The quarterly statement of subscriptions and arrears to 30th June, and the quarterly cash account, were laid on the table.

**JOURNAL.**—Mr. Thompson, chairman, reported the recommendation of the committee, that, as the appointment of a new editor cannot be made for some months, the committee be authorised to make arrangements with Mr. Goodwin to continue his services, and prepare the matter for the February number of the *Journal*.

**PRIZE ESSAY.**—Mr. Thompson having announced the award of the judges, and the motto-paper having been opened by the President, the successful competitor for the prize of £30 in Class X., "Rise and Progress of the Leicester Sheep," was declared to be Mr. H. H. Dixon, of 10, Kensington-square, W.

**EDITORSHIP.**—The President read the following report:—

"The following letter from the secretary was read and considered by the committee:—

"My Lord Duke,—Having served the Society for nine years, and those perhaps the best of my life, I was somewhat astonished at the terms into which Mr. Randall's resolution was altered, and the large majority by which it was carried, and trust you will allow me to offer some remarks to the committee appointed to carry out the decision at which the Council arrived. Had the original idea of this resolution been followed up, I should have gladly proposed my services in editing the *Journal*, and am very willing to do so now with the assistance of a sub-editor, to be approved by the Council. The bond now before you, under which I hold my office, distinctly points out my duties as secretary; and, at the time of my appointment, I stated to the Council my ignorance of practical farming. These duties I have fulfilled to the utmost of

my power, and I trust in a manner calculated to promote the material interests of the Society,\* as is indeed proved by the fact that your funded capital, which at the date of my appointment (December, 1859) stood at £10,000, has, in that interim been raised to £21,027 19s. 6d.; while the arrears of subscriptions, which I then found to be £4,804, are now £646. The annual fluctuation in the number of members is not greater than may be expected in a Society of this magnitude, as was pointed out by Mr. Thompson at the last general meeting; while the influence of the losses occasioned to the farmer by the cattle-plague, and to the Society by the consequent suspension of the cattle show for two years, must be borne in mind. This temporary diminution of numbers will, however, be more than counterbalanced by the meetings at Leicester and Manchester. It will be with the deepest regret I shall quit the service of the Society; but should the report of the committee recommend my removal from the secretaryship, I shall be glad of as long notice as practicable, time being all important to me in seeking other employment, which at my age, I fear, I shall have much difficulty in obtaining.—I have the honour to be, my lord duke, your Grace's most obedient servant,

H. HALL DARE, Secretary.

“His Grace the Duke of Richmond, K.G., President of the Royal Agricultural Society of England.”

“The Committee are of opinion that it is inexpedient to accept the offer made by Mr. Hall Dare to act as Editor of the *Journal* with the assistance of a sub-Editor. Should the foregoing recommendation be approved by the Council, Mr. Hall Dare's engagement with the Society will terminate on the 1st of January, 1869, and the Committee recommend that formal notice shall be given him to that effect, and that he be presented with a year's salary (£400) on leaving the Society's service. The Committee recommend that an advertisement be issued, inviting applications for the combined office of Secretary and Editor, at a salary of £600 per annum. The advertisement to be issued forthwith. No application to be received later than the 20th of October.”

The reception of the report having been moved by Mr. Torr, 13 votes were given in its favour and 14 against it. Mr. Thompson desiring to take the propositions *seriatim*, the President decided that the report having been negatived as a whole could not be discussed *seriatim*.

Mr. Jonas having inquired if the resolution of the Council combining the offices of Secretary and Editor remained in force, Lord Portman explained that the resolution remained until rescinded on regular motion. It was then moved by Lord Walsingham, and seconded by Col. Challoner, that the offer contained in Mr. Hall Dare's letter be accepted. The Earl of Powis opposed the combination of the two offices, pointing out the difficulty of obtaining a suitable person. He considered the salary offered (£600) too small, and moved as an amendment, that the further consideration of this motion be adjourned till November, which was seconded by Mr. Read, M.P., as he considered the subject wants more consideration. Lord Vernon supported the motion to retain the Secretary. Lord Chesham suggested that the Secretary should receive £1,000 on retiring. Mr. Turner pointed out that Lord Walsingham's motion would appoint Mr. Hall Dare to both offices. Mr. Randell and Lord Bridport urged decision

at the present meeting, and want of courtesy in the non-reception of the report. The President did not consider it as such. Mr. Thompson supported Lord Powis's amendment, the arrangements for the next *Journal* being sufficient for the present. On a division Lord Powis's amendment was lost by 17 Noes to 15 Ayes; and Lord Walsingham's motion was lost by 18 Noes to 13 Ayes. Lord Bridport then moved that an advertisement be issued inviting applications for the combined office of Secretary and Editor, at a salary of £600 per annum, which was seconded by Mr. Torr, and carried by 16 Ayes to 14 Noes.

Mr. Randell moved that the amount of remuneration to the Secretary be £400, which was seconded by Mr. Jonas, and supported by Lord Bridport. Mr. Amos recommended £300, which was seconded by Mr. Milward. Lord Bridport then moved that formal notice be given to Mr. Hall Dare that his engagement with the Society shall terminate on the 1st January, 1869, and that he be presented on that occasion with £600, which was seconded by Mr. Torr and carried.

The President then informed Mr. Hall Dare of the result, and expressed regret at the decision which would deprive the Society of his services.

**LEICESTER MEETING.**—Mr. Thompson, Chairman of the Committee, reported that the Secretary had been authorised to arrange with the contractors for the supply of refreshments to the Judges in the field and the Show-yard while the trials are going on. The Judges in the “miscellaneous” class of implements would be in the Show-yard at 5 p.m. on Tuesday the 14th inst. The Committee recommend that power be given to the Stewards of Implements at Leicester to defer the final trial of ploughs and other field implements if the state of the land shall make it necessary: the time and place of such deferred trial to be fixed by the Stewards. The arrangements for the final trial of steam cultivating implements (including the selection of the land), shall also be intrusted to the Stewards of Implements.—This report was adopted.

**SHOW-YARD CONTRACT.**—Mr. Randell, Chairman, reported that all the Show-yard works at Leicester are completed, and the surveyor certifies that the contractor is entitled to the second instalment of £1,000. The railway siding and roads and approaches are all in a satisfactory state. The surveyor had produced a preliminary plan for the arrangement of the Show-yard at Manchester, which the Committee recommended the Council to adopt, subject to such modifications as may be found necessary; and also that the Surveyor be empowered to make arrangements with the railway companies for the transit of the Society's plant from Leicester to Manchester. A tent should be provided in the implement trial field for the use of the Judges and Stewards. This report was adopted. The following noblemen and gentlemen were appointed to serve on the General Manchester Committee: His Grace the Duke of Richmond, chairman; the Earl of Powis, Lord Bridport, Lord Chesham, Lord Kesteven, Lord Portman, Lord Tredegar, Lord Vernon, Lord Walsingham, the Hon. H. G. Liddell, M.P., Sir H. Vane, Bart., Sir Edward Kerrison, Bart., Sir W. Wms. Wynn, Bart., M.P., the Mayor of Manchester, Mr. Amos, Mr. Barnett, Mr. Bowly, Mr. Cantrell, Colonel Challoner, Mr. Clayden, Mr. Davis, Mr. Dent, M.P., Mr. Brandreth Gibbs, Mr. Holland, M.P., Mr. Hornsby, Mr. Wren Hoskyns, Mr. Milward, Mr. Pain, Mr. Randell, Mr. R. C. Ransome, Mr. Read, M.P., Mr. Sanday, Mr. Shuttleworth, Mr. Stone, Mr. Webb, Mr. Wells, Mr. Torr, Major Wilson, Mr. Jacob Wilson, and the Stewards.

\* STATEMENT OF THE SOCIETY'S PROPERTY.

	December, 1859.			June, 1869.		
	£	s.	d.	£	s.	d.
New Three per Cents.....	10,000	0	0	18,027	19	6
Cash at bankers .....	1,339	8	0	3,608	2	4
Petty cash .....		3	4		46	10
On deposit .....				2,000	0	0
Showyard plant .....				2,800	0	0
Books and furniture .....	2,000	0	0	2,000	0	0
	<b>£13,343 12 4</b>			<b>£28,382 11 11</b>		

## IMPLEMENT PRIZES.

The current progress of agricultural mechanics is incompatible with any permanent rule for the granting of prizes to particular classes of implements, either annually or periodically. Such being the march of improvement generally, the Royal Agricultural Society of England has no alternative left but to shape its course according to the force of existing circumstances; and such too is the lot of every other agricultural society.

Not a few implement makers and agriculturists object to the granting of money prizes under any conditions; but the arguments advanced in support of this objection, and of the contrary rule for distinguishing different degrees of merit, are not very well fortified either by scientific or practical data; for if it be admitted, as it generally is, that certain new things should have a prize, but that the old should be rewarded with a medal or empty commendation, then such admissions resolve themselves into the above demand imperatively made by the progress of agricultural mechanics, so that one solution answers both questions. It would not, therefore, be difficult to show that the two parties in this controversy have each much right on their side, but into such a discussion we do not propose dragging the reader further. Old things, to which many old-school farmers cling so tenaciously and fondly in the rear, may safely be left to take care of themselves, with whatever merit they possess; but it is otherwise in the forefront of the march of improvement, where such old things are bidding a final farewell to our homesteads and fields, their places being permanently taken possession of by the new-fangled novelties of the day.

At the present time there is no one department of the farm in which old things are not dying out, as it were, to make room for the prolific offspring of "modern innovation." It is not, therefore, with the great subdivisions into which farm implements and machinery are divided, that we have to deal; but with the progress being made in each of those subdivisions, and with the old things that are becoming antiquated. In other words, in the tillage department of the farm, old implements and machinery are being superseded by new. In the manuring, seeding, and hoeing department, things are to be found in a similar state of transition. In both hay and corn harvest a complete revolution has recently been experienced; and yet during the ensuing harvest, ninety-nine out of every hundred farmers will probably tell you that they cannot yet do without the old sickle and scythe. In the stack-yard and barn the practical man appears to breathe more freely; but even here the microscope has recently revealed such a world of "little bodies," that cling to the grain for their subsistence, that Necessity is just now taxing her ingenuity to the uttermost to get rid of such devouring mouths by numerous processes, chemical and mechanical; consequently these have their respective claims of merit that call for consideration. Dairymen, too, are on their tiptoes, looking round about them, as if awoken by a peal of thunder from a slumber of half-a-century and odds, to see what is already beginning to loom in the distance, *i. e.*, "milk manufactories" with the numerous novelties which they contain. The storm which recently raged so high relative to breeding stock and fat stock markets, &c., has given place to a calm; but in this all-important department of modern farm-practice the atmosphere is nevertheless far from being yet in a settled state, for here and there the geni of the age are singing their "lullabies;" so that before many months expire producers and consumers may see contrivances successfully carried into practice unheard-of before. Accidentally we have passed by the modern department of artificial manures; but no apology is needed for this, inasmuch as the genuine phosphatic and ammoniacal compounds invariably, weather permitting, speak for themselves. Such is a very general outline of the march of improvement in the different departments of farm practice at the present time. Each has its own peculiar claims on the consideration of the farmer, and to these we shall next briefly turn attention.

Of implements and machinery for the cultivation of land, steam-culture apparatus has its special claims. The steam-

plough, for example, is subject to improvement. This is a fact which cannot be denied. On the other hand, it is equally manifest that less or more improvement is annually being made, and so long as this is the case it would be at variance with the requirements of Science and Practice to shunt the steam-plough for a single season. In point of fact, the demands of both Science and Practice require a series of experiments every year to test the merits of steam-cultivating apparatus at different seasons, in order to determine, not only what advances have been made, but also what further advances are required.

What is thus true of the steam-plough applies to every other implement and machine in this department, and also in every other department of the farm. In other words, it may be laid down as a general rule that so long as implements and machinery are subject to improvement, and are being annually so improved, yearly experiments should be made and prizes given.

To every general rule there is an exception; so runs the common maxim; but we aver that there are few exceptions to the above. No doubt a diversity of opinion may arise as to the prospects of farther improvement being made. We might take hypothetical examples for illustration, were such necessary; but, on questions of this kind, farmers and the general public are the judges, not the manufacturer of the implement or machine. And here it must be borne in mind that the solution of the question at issue does not hinge wholly upon the actual progress made in mechanical construction—the big half, if not the more important half, of the solution turning upon the successful use of the implement, in order to satisfy farmers as to its efficiency and advantages.

To this latter half of the solution of the question of steam-culture sufficient attention has not hitherto been paid, the experiments made being so defective and objectionable as to fall short in many respects of the requirements of farmers. No doubt, the selection of the land is the best that can be made under the circumstances of the case for the peculiar district in which the experimental trials are annually held during the period of the show. But the experiments will not bear either a scientific or practical investigation relative to the twofold purpose for which they are made; and therefore the less said about the details the better; for, putting the most charitable construction upon them, the summer meeting experiments of the Royal Agricultural Society of England are, at the best, but very rough guesses as to what the steam-plough can do on the farm of this or that farmer at the proper seasons of the year for ploughing and smashing up the land: hence the practical conclusion.

We receive with much satisfaction any and every proposed change to the better. The after-harvest and winter trials now proposed may not suit so well the cravings of mere sight-seers, or the pockets of not a few farmers at a distance, as the present plan; but it must not be forgotten that such steam-plough trials are neither made to excite the curiosity of mere sight-seers, nor to meet the peculiar wants of farmers with empty pockets. And when we set both these classes aside and weigh the wants of those for whom the experiments are actually made, the facts of the case lead to a very different conclusion.

Two questions remain for a passing notice before leaving this department. *First*, is sufficient encouragement being given to other steam-culture implements besides the plough and grubber? Ought not prizes to be given for steam-rollers, steam clod-crushers, and steam-harrows? And in the next department, for steam seed and manure drills, and broadcast machines?

*Second*: As we progress in the substitution of steam-power for horse-power, and increase the annual number of experiments with the former, it is but in accordance with the requirements of both science and practice that the length of the periods between the trials of the latter (horse implements) should be increased. In point of fact, the attention of the great bulk of the agricultural body is now so engrossed with



steam-culture that they can well afford to shelve horse-culture altogether for the future. As yet, a rule so sweeping as this may not be in accordance with the declared functions of any of our national or even local societies. This may be granted, and yet it may nevertheless be affirmed that the rule is fast working its way into general application.

Much of what has been said about steam ploughs, grubbers, seed and manure drills, applies in principle to mowing and reaping machines, hay and straw elevators, with other machines of hay and corn harvest, subject to improvement, and which are annually being improved. If any patentee or manufacturer is very particular, we see no great objection to leaving out pitchforks, hand rakes, common ladders, harvest carts, and other old well-tried things altogether, making an exception only of real novelty, when it enters appearance; but mowing and reaping machines must be annually tried for a long time to come, and that for the two-fold purpose already noticed under the steam plough, and different prizes awarded to them according to their merits.

In the barn department the period between the trials of thrashing machines, chaffcutters, portable and fixed engines only adapted for actuating the same, with turnip cutters, corn and cake breakers, and old machines of this kind, may be increased in length. But in this department an exception requires to be made of corn screens, scouring machines, and other like novelties under the pioneering hand of Improvement. We have here under consideration a functional distinction between different machines sufficiently far apart to demand a corresponding distinction in the awarding of prizes for the two-fold purpose at issue. Hence the conclusion at which we arrive under this head.

Hitherto, although dairy affairs formed a frequent topic of discussion at its weekly council meetings, in Hanover-square, the Royal Agricultural Society of England has not given much encouragement to progress in other respects. And the same may be said relative to the marketing of breeding-stock, fat-stock, and dead-meat, although few departments of farm practice engross more of the farmer's attention.

There has manifestly been an oversight in this, which may be termed the commercial department of farm practice. We are even apprehensive that when the subject is closely investigated something worse than mere oversight will be found; for not a few of our great ones shy, and even turn tail, the moment any proposition is enunciated for bringing the agricultural body in contact with the inhabitants of our large manufacturing and commercial towns, as if experience had taught them that the latter are too many for them in any commercial transaction.

The day was when country folks had some reason for shying at townsfolks, but that day has gone by; farmers, as a body, being now able to hold their ground with equal-handed firmness and success. At the present time they are even showing themselves masters of their position as the primary and leading body in the political economy of the country, and the true topics under consideration, viz., the commerce of dairy produce and the commerce of live and dead meat, occupy a prominent place in their public and private deliberations in every corner and province of the kingdom. They are topics which claim the special patronage of the Royal Agricultural Society, and that of all our other societies and clubs, with a view to cultivate chemical and mechanical progress in each of these branches of farming. Both propositions are great national movements having for their object the joint economy of labour

and capital, so that they merit the timely consideration of those political economists who are now discussing the rights of landed property, large and small farms, and so on—public questions whose details we cannot at present entertain.

Milk manufactories are of several kinds, according to the nature of their working details. In some of the large American and continental establishments the whole of the milk is produced by the proprietor's or farmer's own herd of cows. In other examples, it is purchased from the farmers in the district. One converts the cream into butter—the skimmed milk into pork; another, the whole milk into cheese—the whey only into pork; a third adopts both practices; a fourth sends a great portion of the cream and whole milk to town. There is thus a considerable diversity of practice, with a corresponding diversity in the dairy apparatus and utensils for carrying the same into effect, in all of which the manufacturer has a control over temperature and everything else comparatively unknown in small concerns at the homestead of the farmer. Such are the advantages in their favour, that it is even said a farmer may sell his milk, and buy what butter and cheese he requires for his own use, with profit. It would be uncharitable to draw any comparisons between such manufactories and the antiquated dairies of the vast majority of farmers at the present day. Such being the general outline, the reader will readily perceive the patronage which this new subdivision of labour and branch of industry requires, so as to increase their number and effective operation, in order to meet the demands of farmers, many of whom may feel it their interest to produce more milk than they now do, were a market for it thus to spring up at their doors.

Our commerce of beef, mutton, and pork is equally subject to improvement. Of late years, much encouragement has been given, and many improvements made in the art of production; but the roundabout way in which farmers convert this description of farm produce into hard cash is yet deplorably antiquated.

It were difficult to imagine any branch of human industry more out of date than our cattle markets and dead-meat markets. And yet when we put the plain, practical question, What has the Royal Agricultural Society done, and what is it now doing to encourage improvement? we are at a dead loss how to return a satisfactory answer in harmony with its chartered privileges and duties. To say that nothing can be done to stimulate progress is tenfold worse than no answer at all. Before the establishment of milk manufactories nothing could be done with milk in the country far away from towns. Some give it to the pigs, or convert it into cheese which nobody would eat. But no sooner do such establishments make their appearance than everybody is surprised they did not appear sooner, so simply manifest and successful is everything about them. Just so it is with our beef, mutton, and pork. We produce them in abundance, and would produce much more could we only see our way clearly to a more intelligent economy; but this we cannot do, although suspicion is becoming stronger and stronger every day that an incalculable loss is being sustained. Consequently farmers keep grumbling, as this all-important branch of commerce continues to flow on in its old antiquated channel—like the stream in the desert, growing beautifully less and less, as it sinks in the porous substratum below unseen, and rises in the atmosphere above in the form of vapour invisible! All this is plain enough; but it weighs heavily upon the shoulders of the farmer and the productive resources of the country.

ENGINEER.

## THE WORKING AND USES OF AGRICULTURAL MACHINERY.

At the quarterly meeting of the Boroughbridge Agricultural Society, Mr. SCRUTTON said: The subject allotted to me has been on agricultural implements and machinery. As this subject is too extensive to be treated in a short paper, I shall confine myself to the working and uses of agricultural machinery. Firstly: The necessity of reaping and securing our grain crops. It is of great importance, though it is widely modified as to time, labour, and precariousness, by the nature of the climate and the character of crops. In reaping our grain, it has only occurred within the last few years that a

march of improvement has come to our notice from the sickle, which has been in use for thousands of years; next the scythe was introduced, which was not an improvement on the sickle: it was a most untidy way of reaping, making great waste: the only benefit derived was getting it quicker done and sooner ready for the stack-yard. Now we have reaping machines nearly brought out to perfection, which, a few years ago, were considered by the agricultural societies prizeless machines, but, through the skill of our mechanics and hints given them from our agriculturists, have come at the proper mechanism. We

owe no little sympathy to our implement manufacturers, if we look back how they have tried to invent machinery for the cheaper mode of farm cultivation. We now have reapers quite equal to the sickle, which was a cost of from 10s. to 16s. per acre reaping. Our crops can now be reaped with a reaper at from 6s. 3d. to 10s. per acre, including raking and making it, quite equal to the sickle reaping, leaving no rough stubble to contend with afterwards, which is now made into manure; also, the great benefit derived when a general harvest comes hurriedly on, and the weather for it is capricious and exceedingly changeable. The farmer has daily and nightly about as much need of skill and energy, vigilance and continual self-possession, as ever Wellington had in any three months of his Peninsular campaign. It is needless for me to say anything as regards the working of reaping machines, as they are made so simple to work, nor can I recommend any particular maker's reaper—the principles are so nearly allied. I can only say that in making a purchase of a reaper do not get a light-made reaper: you cannot get power in a light machine. To cut heavy crops a three-inch stroke in the crank is the best for cutting clean, and a six-inch stroke in the crank is easier draught for the horses, requiring less speed, but does not cut so clean a stubble, which is easily accounted for, that a slow cut is not equal to a quick one. Have your reapers examined in due time before harvest and put in good order, as delays in this respect are troublesome, and expensive to have to repair when they should be at work.—Secondly comes the time for autumnal cleansing. No time should be lost after the crops are carried, our part of the country, being a northern district, not having the same advantage in this respect as the south; also twitch grass makes great progress in the roots after the crops are reaped. The cultivators mostly in use should be those with the three-inch times: first, to loosen the soil and make it in better order for crossowing with the broadshares, cultivate your land a good depth, so as to extricate the twitch grass; then use a drag with teeth well forward, so as to lift any weeds the cultivator has not brought to the surface. All seasons are not suitable for this process of cleansing the land of weeds; nevertheless strive to get it done, as frost will, to a great extent, kill twitch grass when exposed to it. Great benefit is derived by scarifying the land that is to be cleaned of weeds, and not to plough in the spring when the land is wanted to sow with either corn or turnips, particularly the latter: if strong loams are to be ploughed in the spring, and the winter tilth or moisture lost, it invariably is never regained. The chain harrow is an indispensable implement for using, in the process of dashing the soil from the twitch grass on strong land that has been cultivated in the autumn. It is not amiss to put on the chain harrow after a frost, if there be much twitch on the land, but the land must be sufficiently dry. Much benefit has been derived by the use of the scarifier, over the old system of ploughing and harrowing, as every harrow, be its particular construction what it may, fails to bring up the weeds from any considerable depth. The scarifier may be termed the king of harrows, or an intermediate implement between the plough and harrow. Thirdly: Having cleaned oat, bean, and pea stubble intended for wheat, with the broadshare, and the time approaching for wheat sowing, it is necessary to get the plough to work, which, in its perfection, is the foundation of good husbandry. Very few bad ploughs are made now: there is a marked difference from the old-fashioned ploughs with short straight handles, short mouldboards, setting their furrow upon an edge, being incapable of turning the soil, and merely effecting a stirring or breaking up. A plough should set its furrow at an angle, to be in the best form for harrows, making plenty of tilth for the seed; avoid laying your furrows too flat, which is regulated by the width of furrows taken; if the land be clear of stones, use a share the width of the furrow you take, so as to cut up all weeds; if not, thistles and various kinds of weeds will soon appear in the plough seam. There are few implements now in common use that have undergone more improvements than the plough. Our ploughing matches have made great success in this department of farm practice; good ploughboys are to be found on nearly every farm. A sharp active boy will do more work now and much better than men could do before the wheel plough came into public use. Fourthly: Having prepared the land for seeding, the steerage drill being an implement of much importance should on no account be omitted to be used, it being an economiser of seed, as well as the

exactness in the rows being in a true position for horse-hoeing. A drill of about eighty inches in width is a useful size: it can be made to drill four rows of beans, twenty inches apart, which, when a five-foot reaper is at work, will be found to take three rows of beans and reap them tidily. If the rows are shed by the reaper the work is not so well done. After the autumn sowing is over, the digging breast should be attached to our ploughs, which, in its form, leaves the land in a broken, rough, and exposed surface for the frost. Fifthly: Machinery, in its application to manufactures, consists in the addition which it makes to human power, the economy of human time, and in the conversion of substances apparently worthless into valuable products. The same applied to agriculture consists chiefly in steam-thrashing machines, which is a saving of human power and economy of human time over the old system of thrashing. Next comes the root pulper, an implement applied to bring worthless substances into valuable use; also a great saver of our root crops, which is so costly to produce. Chaff, which formerly used to be buried in pits to get rid of weeds, by the use of the pulper has become, by being mixed with roots, a valuable counteractant on the bowels of cattle, as well as making our roots go further. By the use of the chaff-cutter, chaff is substituted with cut straw for mixing with meal for horses. A turnip-slicer for sheep forms one of our most indispensable implements, for the fattening of hoggets and other sheep on turnips in the winter, thus in wet weather being a great saving over the old system of eating turnips on the land unpulped, which caused much waste by the tramping of their feet over them, until they would not eat them. Various other machines are to advantage, such as grinding mills. Sixthly: In the early spring time of the year, we must look to our horse-hoeing. The practice of cereal-hoeing is all but universal in modern agriculture. It dates its adoption with the introduction of drill-husbandry, and is a most valuable aid in the production of a fine and profitable crop; it is a great help to the cleanliness of the soil, and assists the healthy growth of the plants. It has been found profitable to hoe the weediest portions of the farm by hand-hoeing. Why should we now neglect to hoe when practical and scientific skill has improved and brought before the public an implement for use at so trifling a cost compared to hand-hoeing? It can be done at 1s. 6d. per acre, and more effectually; whereas hand-hoeing costs about 6s. per acre and is only imperfectly done. The best time for hoeing is as soon as the corn is high enough, but not to cover with the loose soil. It is injurious to the plant to hoe when corn gets high, as the roots are spreading in search of additional food to promote their more vigorous growth, and if cut off with the hoe will be an injury to the growth. The true principle of horse-hoeing consists mainly in the breaking of the surface soil and the extirpation of weeds. The greatest advantage over the hand-hoe is in consequence of one man, two boys, and two horses being able to do from 12 to 16 acres per day, as necessity requires. The advantage of doing a large portion in one day is to get through the work in fine weather, so that the sun will have its influence in killing the weeds. Seventhly.—Implements for the preparation of green crops.—The common harrow, to loosen the surface soil; next the chisel-harrow is a valuable implement for breaking and loosening the soil; then the drag or cultivator, to get deeper into the ground, and to form more loose soil for ridging. A cheap-made implement, called the bruiser or scrubber, used in timely application after the drag, will produce, in the generality of soils, a tilth that cannot be excelled, leaving the soil in a much lighter state for the ridge-plough than any other kind of implement. Drills or ridges may be opened out with either the double-mouldboard plough or the common plough. The last-named plough can be made at a trifling cost, by putting a thin iron mouldboard on the left side of the plough, with a screw to adjust the width of the plough. A small iron attached to the plough, to mark the width of the ridge, is very useful to keep the ridges even. A light-made drill for mangold wurtzel and turnips, with concave rollers to fit the ridge, is the best for drilling with perfect exactness on the centre of the ridge, and a great improvement on the old system of drill with fast coulters, as often depositing the seed on the ridge side as anywhere else, and making it difficult for the ridge horse-hoe to work. A light roller is a very useful implement to roll the ridges after the seed is sown, and to press firm the seed amongst the earth, which so often admits the parching air and extracts the

moisture. The rough roller is preferable to a smooth roller; for when heavy rains come it is not so liable to fasten the soil, on account of its leaving an uneven surface. Eighthly.—Implements for mowing grass and hay-making.—The mowing-machine is quite universal now, and used on almost every farm. It excels the scythe, gets nearer the ground, by the aid of a flexible beam; it can be done at a cost of 3s. 6d. to 4s. per acre, where in many districts 6s. was paid before the mowing machine came into public use. Not only is it a saving in the cost of mowing, but it does its work much quicker. The old adage is, "make hay while the sun shines." It is absolutely frightful to see the quantities of hay lying before cattle in some places, that nothing but great hunger can tempt them to eat, being fit for nothing but the dunghill. Hay wants getting quick and kept moving by the haymaking machine, and it will keep its weight and colour, its proper amount of juices, and that delightful aroma so sought after by cattle. Let it lie to "make itself," and the sun will soon scorch all that on the top, while there is no making whatever that underneath; time and quality are thus lost, when the crop might have otherwise been well secured.

Mr. SCOTT said he would recommend to all young beginners the necessity of being very careful in the selection of proper implements to use upon their farms. It would be well for them to consult their friends, and also the reports of the various agricultural shows. They must go to the best makers for their implements. To one maker for their ploughs, to another for their drills, and not obtain all the implements they required of one particular maker. They must choose the best makers for the particular implements they wanted (Hear.) How different was the state of the blacksmith's shop now to what it used to be! Formerly they saw nothing but the vice, anvil, and bellows; but now, at almost every blacksmith's shop, there was a small steam-engine at work, and agricultural implement-makers had made rapid strides in improvements, and they had displayed skill and ingenuity in the manufacture of locomotive engines. He thought that Mr. Scruton had not alluded in his lecture to the digging plough, one of the finest improvements effected within the last few years. There was the chisel-harrow, too, which was a most valuable implement.

Mr. BAINBRIDGE said that there was one point with regard to implements which ought not to be overlooked. They ought to be properly taken care of, and not thrust into corners or left in the middle of the field to become out of order. He had seen a reaper standing out last winter. It was the height of folly to use implements in this way, to leave them unpainted, and to let careless boys have the charge of them. Agricultural implements, generally speaking, required far more care than they received at present.

Mr. APFLEYARD said that the water-drill for turnips was not mentioned in Mr. Scruton's paper. He had used the water-drill on his farm, and it answered well, and he had also experimented with a water-cart upon an acre of turnips in one of his fields. The water-cart went over two rows of turnips at a time, and they had been watered every other day for some time. He should have a very good crop of turnips upon this acre of land, but as to the rest of the field, which had not been

watered, he had not yet seen a turnip-plant make its appearance.

Mr. SCOTT said that he had used the water-drill with success upon his farm for the last fifteen years. He was of opinion that the water-cart, as alluded to by Mr. Appleyard, would be of great service, because it would act mechanically in the equal distribution of the manure.

Mr. HARLAND inquired of Mr. Appleyard if he rolled the rest of the field which he had not watered?

Mr. APFLEYARD replied in the negative.

Mr. HARLAND said that if Mr. Appleyard had rolled the soil it would have become consolidated. If the roller had followed the drill it would perhaps have done as much good as the watering. He found upon light soils the use of the level drill beneficial, and it was the kind of drill he approved of. It would act well, fitted with a tillage-distributor, and followed immediately by a light harrow and roller; yet it might be that he should think differently if a plentiful supply of water was near the land.

The Rev. C. H. SALE said that thrashing-machines had been a great boon to the agricultural labourer. During the early part of his career as a clergyman, he had known many strong young men "killed off" in the prime of life in thrashing by hand. Wages were high, and these men were stimulated to over-exert themselves; the consequence being that they died of the lung complaint, by inhaling the dust from the thrashing. Many men, by thrashing in a barn for eight or nine months together, were at length attacked with the lung disease, and died at an early age. Agricultural machinery required something like skill and intelligence in its management, and it therefore behoved the farmers to do all they could to educate their labourers and servants. Men who were uneducated and dull must mismanage machinery, and it stood to common sense that those employed on farm-work should be properly trained. On every farm there ought to be at least two or three men having a smattering of mechanical knowledge, to prevent the others from getting into error in the use of agricultural machinery.

Mr. SCOTT said that the mechanical construction of agricultural machinery was such that it required the men engaged in its use to be very careful and to pay particular attention to oiling the various parts, and keeping the whole in proper working order. He had used a reaping-machine since 1852, and he was now using more than one, and they answered their purpose remarkably well. Mowing-machines for grass were more efficient than reapers, as they were more simple in their operation. The raising and lowering of a reaping-machine when in motion was a great improvement.

Mr. SCRUTON said that four years ago he introduced at Goldsborough a grass-mowing machine. It was very much liked, and he soon got a second, then a third, and at last a fourth, as orders for cutting grass came in so fast. At first his young men were ignorant as to these machines, but they soon became acquainted with their use; and with these four machines, in one season, he cut 900 acres of grass, and not the slightest fault was found with the way in which the work was done. The farmers liked these machines so well that they purchased them of him.

## POOR RATES ASSESSMENT.

The select committee appointed "to inquire into the assessment and collection of poor rates and other local rates and taxes in England and Wales" have issued their report. The conclusions at which the committee have arrived are expressed in the following series of resolutions:

"1. That every local authority entitled to raise any money by means of local rates should make a requisition on the overseer or other proper officer for the whole amount required to be paid, so far as the same can be estimated, for the period of one year, commencing at a fixed period.

"2. That such requisition should be delivered to the overseer, or such other officer, a reasonable time before the commencement of the year, to enable him to make a rate at that time.

"3. That such requisition should state the amounts which

may be required for the several purposes, if more than one, for which rates are authorized by law to be made.

"4. That the overseer should, on receipt of all the requisitions made on him for the year, make one consolidated rate sufficient to satisfy all such requisitions.

"5. But when all property described in the rate-book is not liable to be rated uniformly for the purposes of all such requisitions, such entries shall be made in the rate-book as may be necessary to show such difference in the rate.

"6. That the rate should be payable by not less than four equal quarterly payments, and be collected and enforced accordingly.

"7. That where the rate exceeds 1s. in the pound, the person in occupation of any tenement let at a rent payable

oftener than quarterly may elect to pay the rate by monthly instalments.

"8. That, in addition to the rate-book now prescribed, a book to be called the 'Instalment Rate-book' shall be provided in a form to be prescribed by law, in which the name of each occupier electing to pay monthly the amount of the rate, the amount of each instalment, and the time when payable, shall be entered.

"9. That, when any necessity shall arise during the year for any rate above the estimated annual charge, a special rate shall be made, and be collected with the next following payment.

"10. That a demand-note should be left with each rate-payer, on the rate being made, stating the amount of the requisitions, the rate in the pound for each purpose, and the period for which the rate is made, the rateable value of the premises, amount of the rate thereon, and of each payment.

"11. That the overseer should be empowered, at any time after a rate has been allowed, to amend the rate-book, with the sanction of the justices, by omitting the name of any person unduly inserted, or inserting the name of any person unduly omitted.

"12. That where any premises, being vacant at the time of making the rate, shall become occupied before the next rate shall be made, or any change shall take place in the occupation during the year, the overseer should make a supplemental rate in respect of such occupation.

"13. That paid collectors should be employed where necessary to collect the rate, for such remuneration, by way of salary or commission, as the local authority making the requisition shall consent to allow out of the amount thereof.

"14. That the overseer and collecting officer should pay over the rate as collected, and account for the same and for arrears thereof, at such times and in such manner as may be prescribed by law, and the same should be enforced by a summary proceeding before two justices of the peace.

"15. That every change in the ownership and occupation of premises should be reported by the collecting officer to the overseer, and every increase in the value of the premises should be reported to the Assessment Committee.

"16. That the Commissioners for the Assessment of Local Taxes should deliver yearly to the overseer, or other proper officer, a schedule of the taxes to be collected from tax payers in the parish (except the assessments of the special commissioners of the income-tax).

"17. That the collecting officers should collect, account for, and pay over the taxes according to such directions as they may receive from the Board of Inland Revenue, on being allowed such per-centage thereon as may be allowed for the collection of taxes.

"18. In the event of any loss arising from the insolvency of a person liable for both rates and taxes, or from the embezzlement of a collector, the priority of claim on the part of the Crown on the available fund should be preserved, subject to which the loss should be borne rateably out of the several requisitions for which the consolidated rate was imposed.

19. That the owner should be rated in the following cases:  
a. Where the tenement is let furnished; b. Where the tenement is let in apartments, but the occupier should be permitted to claim to be rated and be rated in manner prescribed by the existing law.

"20. The owner should be deemed to be any person receiving or claiming the rent of any tenement, or receiving the same for the use of any corporation aggregate, or of any public company, or of any landlord or lessor, who shall be under disability; or for the use of any person who shall not be actually resident within twenty miles from the parish in which the tenement is situate.

"21. That the power of excusing persons from the payment of rates should be transferred to the board of guardians, and any allowance of exemption from rates on the ground of poverty should be considered as out-door relief.

"22. That the board of guardians, before hearing any application of an occupier for excusal, shall give notice to the owner of the tenement occupied of the time and place appointed for hearing the application.

"23. That the owner of every tenement, the occupier of which has been excused payment of rate on the ground of poverty, shall be liable to two-thirds of the rate.

"24. That where premises are let for shorter periods than a year, the assessment should be carefully revised, so that, in fixing the gross estimated rental under the Assessment Acts, proper deductions should be made from the enhanced rent charged by the owner, to cover the risk and cost of so dealing with his property.

"25. That when the owner is compelled to pay any portion of the rate, contrary to his agreement with the occupier, he shall be entitled to recover the same by distress or action from the occupier; and when the occupier shall be compelled to pay the rates, contrary to his agreement with the owner, he shall be entitled to deduct the same from his rent, or to recover the same, as well as damages, for any distress he may have suffered by action from the owner.

"26. That so much of any public or local Act as relates to compositions for rates for public purposes should be repealed."

### T I P T R E E F A R M .

A deputation from the Midland Farmers' Club, consisting of Messrs. J. Ford (the president), E. Yates, H. H. Chattock, W. Brewster (Stretton), C. L. Browning, J. France, T. Horley, R. H. Masfen, Shenstone, J. Smith, J. A. Williams, M. Williams, and J. B. Lythall (secretary), visited Tiptree Hall Farm by invitation. The deputation from the Midland Farmers' Club was met by Mr. Moore, chairman of the Farlington Farmers' Club, with Mr. Dyke, Mr. Humfrey, and about twelve members; Mr. Bridgland, chairman of the Maidstone Farmers' Club, and twenty-five members; and some others also accepted invitations.

From the character of the soil of the county and the general healthy appearance of the wheat crops of the district, it was expected that the Tiptree wheat would present a very creditable appearance, but none of the members of the deputation were, we believe, prepared to see so much good wheat for the whole growth as Mr. Mechi showed them. The total extent of land in wheat is 72 acres, the farm comprising only 170 acres, of which 13 are in pasture.

Mr. MECCHI having stated at Birmingham that he made 18 per cent. on his capital of £16 per acre, and would have preferred to increase his capital to £25 per acre, was requested by Mr. MASFEN to give his opinion as to what per-centage he would obtain on this additional capital. Mr. MECCHI, in reply, stated that last year he had to sell hay and straw, which, had the additional capital been forthcoming, he should have consumed with cattle, thus obtaining a much greater quantity of manure, both liquid and solid, and thereby increased fertility and yield. He considered, if he had employed £1,500 more, he should have made 20 per cent. on the whole capital.

A discussion took place, in which Mr. HORLEY and Mr. BREWSTER took part, as to Tenant Right, the general opinion being that it was futile to expect farmers to lay out money in the manner it was done at Tiptree, or to follow in Mr. Mechi's steps, without security of tenure or ample compensation; Mr. FORD requesting Mr. Mechi's opinion as to the best way of attracting capital to the land, and obtaining security.

Mr. LYTALL also stated that in the great majority of agreements in the Midland counties the tenant-farmers were so tied down to particular courses of cropping that they could not farm as Mr. Mechi did, even where they had the inclination and the capital; and he also spoke of the loss caused in corn and root-crops by the large quantity of hedge-row timber in the Midlands.

Mr. HALLETT would give his agent the management of his best farm, and make it the standard for his tenants to farm up to, as long as it paid; to which the farmers present objected, thinking the agent should rather have one of the worst farms to improve.

Mr. MECCHI, in conclusion, said that no doubt the main question involving investment of capital in the soil was security of tenure. He was decidedly in favour of a long lease, or an equitable Tenant Right. Long leases were impossible in all cases, and he thought landlords should be most particular in looking to character, conduct, improving business habits, and capital of tenants, and then bad farming would soon become the exception.

## ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

## MEETING AT LEICESTER.

The resuscitation of the Royal Show must have been a question of some moment with the management; but it is one that has been very satisfactorily solved. The interest in these occasions has by no means died out on the fallows, and seldom has a meeting been better supported than that at Leicester. The champion breeders of most kinds of stock came in something like their pristine force, the public came in greater numbers than ever, and the implement makers spoke to the briskness of trade and the great promise of the opening days. In fact, the only doubt expressed, and this was a very general feeling, went to impugn the policy of cutting the week into two, and driving people away on the Saturday with the idea that they would ever come back again on the Monday. Let the trials of machinery extend over ten days or a fortnight; but if the cattle show proper commence on the Tuesday and finish on the Friday, it would amply answer its purpose, as such an arrangement would be far more convenient to a great majority of the visitors. But there is and long has been a certain peculiarity in the action of the Council, which goes to make alterations that were never needed, and to resist improvements that have been long pressed upon its attention.

If a really magnificent show-ground and the most brilliant of weather would tend to ensure success, the Royal Society was so far favoured; but, as has already been inferred, there were the still more substantial attractions of large entries and much merit. In some of the sections, such as the Leicester, Southdown, and Shropshire sheep, the Devon cattle, and certain varieties of the pig, these breeds have seldom or ever been so well represented; while the Shorthorns, if only good in places or classes, yet reached quite to an average of excellence, as the riding horses are fairly training on into a very creditable, and of course at the same time into a most popular, feature of the exhibition. The very catalogue went far to assure one of the worth of what there was to see, and in the first class of cattle there were the names of owners and animals almost equally famous. These old bulls indeed, with many a winner in the ring, took a deal of judging and drafting; but the award ultimately arrived at struck the key-note, and the Booth blood was altogether in the ascendant. Commander-in-Chief took a second prize as a yearling at Plymouth, where he was but little fancied, save by the Judges, one of whom was here again in office. The Commander has gone on growing and improving, and is now certainly a very handsome animal, with a good fore-hand, and fine length, but with rather a lack of masculine character about his head, and with his tail set on high and lumpy. A still neater bull, so much so as to be pronounced almost "pretty," was the Heir of Englishman, who has been a frequent winner in Scotland, and that was considered by many to be the next best here. The judges, however, went for Mr. Peel's white, a not very taking bull until you study him closely, and who proves better in his standing than when led out. There is a want of freedom about his carriage, and the hand we should say had more to do with his place than the eye, for no doubt the award was something of a surprise to the lookers-on. The third prize, Huntsman, has many good points, the more especially forward, beginning with a capital head, in which respect he was superior to his fellows; while Mr. Lynn's Prizeman, Mr. Pawlett's

Baron Killerby, and Mr. Christy's Duke of Grafton, that have been all winning about the country this summer, were kept in or "about" for some time, although, as was very evident, with no chance of reaping anything higher than a commendation. The class of two-year-old bulls contained some of the worst animals in the show, and nothing could look like a greater burlesque on the improved Shorthorn than such things as Prince of Rosedale or the Northumberland Knight. The indifferent altogether preponderated, and after having seen them go once round we put our mark on Baron Geneva as a long way the best of them. He is deep, round, and handsome, of a good roan in colour, and moves well, so that the judges could not keep their eyes off him, and Mr. Adeock "won easily" if ever such a phrase was admissible. That now well-known exquisite, the pretty Charles le Beau, again got into his favourite place of second, while Mr. Stratton, even in such company, could reach no higher than a commendation, but his young bull was thought more of out of than he was in the ring. The best Shorthorn bull in the show was the best of the next class, the Irish yearling Bolivar, the best of all the bulls at the last Dublin show, and of wonderful quality, with the finest silky coat, a long level frame, and so forth. In fact, there is scarcely anything against him but his colour, so dingy and rusty as to really detract from his otherwise handsome appearance. Lady Pigot was again second with another of her strolling company, and a plain cloddy animal from Gloucestershire lacking all the fashion of the other two put third, as the judges here hardly held to their line. The calf classes do more harm than good, but there were some nice promising young bulls, if these be not spoiled in the making, and Mr. Foljambe first and second for quality and style, with lots of critics ready to reverse the judges' decision; but this is no uncommon case where the same man takes all the honours. In fact, in Yorkshire, the very owner will commonly uphold the second, knowing well enough that the fact of a "first" will always speak for itself.

One of the sweetest, straightest, and altogether most charming cows out for many a long day is Mr. Booth's Lady Fragrant, who still gathers graces with her years, and is really ripening into perfection. Her head and "expression" would furnish the study for a picture; and so far as the chief prize could be concerned, there was no competition. Still the Queen of Rosalea is a lengthy, handsome animal, that has previously beaten Jolly Queen, as to our thinking she should have done at Leicester, and it certainly was not for want of "a show" if she did not. A gaudy, vulgar, steery animal, from Leeds way, was made the reserve number, and some further commendations liberally scattered. But if the cow class were a good one, Lady Fragrant is a clipper. Against but little competition the three prize two-year-old heifers are all good, and we have previously spoken to the merits of the Dame of Rosalea and Thoughtless, but Her Majesty's entry has never been out before, so that she may show fresher than her competitors; as indeed Lady Pigot looked rather out of luck, most probably from the peregrinations to which her stock have been subjected. There was a very large and excellent entry of yearling heifers, led off by Mr. How's Lady Anne, that has been winning all over the country, at Downham, Newmarket, Oundle, and Lu-

ton, and to whom we have all long since taken off our hats as "a beautiful lady-like creature." We believe this heifer has never been beaten, yet she has a long pull amongst a lot of yearlings, being now close upon two years old, although there were even her seniors here, Mr. Garne's third prize, Duchess of Towneley, being still nearer to the limit. With Mr. Booth second and the reserve, the great merit of the first heifer may be easily imagined, but there were others worthy of notice, although but few commendations were appended. Mr. Stratton got a place at last amongst the calves, where Lord Penryn won with a particularly neat one, and Mr. Beever deservedly gained some further commendation for the Shorthorn herd he is cultivating on the banks of the Wye.

This no doubt sounds very like treason, but the Hereford breeders must show a better front if they mean to hold their own. There was no breed which attracted so little attention at Leicester as the white-faces; and there should be no surprise if it were so. The entries were generally scanty, and in many of the classes there was no competition beyond the one or two prizes the judges had at their disposal. Moreover, the sample was not a very brilliant one; and when we remember the grand shows of Herefords that we have witnessed, we are the more inclined to condemn the apathy into which breeders appear to have fallen since the meetings were for a time set aside. The Sir Benjamin blood is very strong in the prize-list, and Mr. Rogers' old bull, a very good one, comes on both sides of winning strains, though Mr. Arkwright has the best of what there is here. His cow is low, lengthy, and handsome; his young bull very promising, and his yearling heifer very perfect in her frame, but not so nice about her head. Mr. Plimley also shows a clever heifer in an older class, where she has no difficulty in beating two very poor things from Mr. Prosser; but as there are three prizes and only three entries, everybody gets something. There was only one bull-calf sent, and only four yearling bulls entered. Her Majesty, it will be observed, still maintains her Hereford herd, Mr. Duckham is an exhibitor, and a young bull was sold early to go to Ireland, but, nevertheless, if any one can be said to have enjoyed the cool shade on Leicester race-course, this must have been a Hereford beast.

Any weakness amongst the white-faces was rendered the more remarkable by the comparative strength of the Devons, of which there was really a capital show. In some of the classes, in fact, the competition was considered to be almost too much for the judges, and nowhere were the decisions more warmly canvassed. It appears that a very experienced man, Mr. Franklin, being unable to come, the Council put on his son, and it was thought the only west-country man was continually out-voted. The first lot of bulls, certainly full of good animals, took a deal of judging, and it appeared at one time that the trio never would arrive at an opinion, and, when they did, this was by no means endorsed outside. They made their best of all a smart bull of Mr. George Turner's, that was also first at Falmouth, and they put a yet more clever blood-like bull from Flitton third, with one of Lord Falmouth's between them; as it was assumed that the local man had to remonstrate very strongly before he could obtain thus much. Still the class, no doubt, was very "trying" throughout; and were we to find fault, it would be rather with the terribly high and over-done condition in which some of the animals were exhibited, than with any want of actual merit. Mr. Bodley's bull was quite worthy of a prize, and it is significant to see that almost all the honours went to the true or North Devon type. There was only one entry of two-year-olds; whilst the Somersetshire men had all the best of the yearlings, if Mr.

J. A. Smith's high-bred looking animals are open to the comparative reproach conveyed in the term. It is when the blood-red begins to lose his colour, and fade into a dull dun or yellow, that we come to think there is need to go back to the old sort. However, at Leicester the home Devons by no means lacked size; and the Somersets, with an exception or so, seemed to be gathering more style and quality. The Bradford Peverill herd was first again with cows, and the whole class of heifers, in milk or in calf, was commended. There was not much competition in the yearling or heifer-calf classes, but the young things sent were all beautiful specimens of their kind; and there are few more beautiful animals in creation than the round, compact, active, but thriving Devon; and here again her Majesty gives her countenance. The Shorthorn, indeed, is almost the only beast that has not made much mark from Windsor Castle.

Possibly from the neglect with which this qualification has so long been treated by our leading breeders, a certain reaction has set in, and there is now quite a run on good milkers. Although the entry of Channel Island Cattle was not large, the Jersey judge was quite satisfied, as amongst the animals were many winners from the Island. Mr. Pallot's best bull was considered to be a very superior specimen of the Jersey, uniting true symmetry with more size than is often seen; as Mr. Gaudin's second was also pronounced to be very meritorious. The fifteen cows were really all good, many of these being exhibited by English gentlemen, if they could stand but little chance against the Island breeders; whilst the gem of the sort was Mr. Pallot's two-year-old, not only very graceful in her appearance, but with her milking properties finely developed. Of course the call was for Jerseys, but Lady Berners' highly-commended cow is a Guernsey; while for anything like a distinguished animal prices ruled high, forty or fifty guineas being readily asked for a cow; but then at Mr. Dancy's sale more money was often made, and we doubt if Mr. Dancy could have won at Leicester.

There were five entries in four classes of Sussex, with only two exhibitors—Messrs. Heasman and Mr. William Marshall; and of course this breed will be dropped out of the list into the other established breeds, chiefly made up here by Midland Longhorns and Norfolk Polled. The Longhorns were indisputably good, as in more numerical force than usual; and the Polled milkers scattered here and there throughout the classes had no chance in such company. A mixed class must be but an ungrateful one to judge; and considering that Leicestershire has always been their vantage ground, the Longhorns, if only by the way of a curiosity, might have had some rank of their own.

In a nicely-formed ring, which allowed the public to get near enough to the horses to see what was going on, business commenced on Thursday, at eight o'clock; one end being taken up by the judges of riding horses, and the other by the agricultural bench. Nine out of the ten thoroughbred stallions entered as suitable for getting hunters made their appearance in the ring—Ivanhoff, by Muscovite, out of Blackbird by Irish Birdcatcher; Lancer, by Heapy, out of Cairngorm; Angelus, by Orpheus, out of Nutmeg by Nutwith; John Halifax, by The Ugly Buck, dam by Annandale; Rouge Dragon, by Windbound, out of Paradigm by Paragon; Cawood, by The Cure, out of Brandy Snap by Muley Moloch; Naseby, by Cotherstone, out of Victorine by Speculation; Hurrah, by Newminster, out of Jovial by Bay Middleton; and General Hesse, by Nabob, out of Lady Alice by Lanercost—the absentee being King of the Dale, by Annandale, out of The Nugget by Nutbourne. During the judging some of the horses were sent on a visit to the veterinarian for certificates of soundness, and Ivanhoff, not returning with his licence,

was out of the contest. Lancer is a low horse of some power, but with not the best-formed fore-legs, though he has in other respects a fair fore-hand; however, he is mean behind and a very straggling, wide goer; but, as he is only three years old, he might improve, but never grow into a good one. Angelus, a prize horse at the Great Yorkshire shows, held at York and Thirsk, was loaded with flesh—the fat running off him like butter, in his box. He has not improved since York, where we consider he was placed before several horses much better adapted for getting hunters, as he is anything but true-made or well balanced, his beefy fore-hand being out of all proportion to his hind-quarters. Loaded with lumber, as he is, and not brilliant in action, he came paddling into the ring more like an animated Suffolk or a fat ox than a thoroughbred. General Hesse, though a smaller horse, is much more to our mind, for he walks away well, and though lightish in his middle he is not half a bad one for the purpose; while there is something very grand in old Naseby, with his fine, haughty head, rather dilapidated middle, and rare-formed, oily-going old limbs. He reminded us something of Sir John Barleycorn, and like him has been hunted, carrying a gentleman whose years added to those of Naseby are something over eighty. John Halifax moved well; but his handsome looks smack more of the light charger, park, or harness sire than the hunter; and Rouge Dragon is such a deformity that it astonishes one how he could have escaped the knife. Hurrah has a fair but long top, with wooden, stilty fore-legs; and Cawood, with good shoulders, has a mean and anything but a taking appearance. It will be seen by our summing-up this was not a grand class, although there were four or five very decent-looking horses out of the nine. The best hackney stallion to our mind is a neat thoroughbred when he can be had, and while a horse that could move like Greenford by Ellington, out of Madame Landeau by the Libel, was in the ring, we consider it anything but judgment to have given the prize to the coarse-shouldered Norfolk roadster, Ambition. What mares would the judges put to such a horse with the expectation of getting anything with fashion to carry a gentleman? But these hammering, fussy, flourishing vulgar goers are, we are glad to see, in the course of civilization becoming extinct. The second was the well-known cob-stallion Lucifer, and the third a neat little horse, with limbs that he could move, by the ewe-necked, old savage Footstool, out of Lady Liveden by Oscar. Then again, in the pony stallions, Jack Horner is as vulgar a looking beast as any one would not wish to see in the form of a thick, heapy, cart-like cob, and yet placed before the blood-like King Arthur! and that fashionable little swell, Bobby, from Donnington!

We come on to something far better in the hunters, mares, and geldings, without condition to weight, and a capital class, headed as it is by Captain Heygate's well-known brothers Denmark and Mountain Dew, whose merit is not only in their looks, for they are both tried good ones over a country. But they have not much chance of bringing those hind legs under them, and showing themselves off to advantage to-day, for, though upon the race-course, the going is as slippery as glass. They are on sale we hear, and at so moderate a figure that such a chance does not often happen to those in search of a couple of the right sort, just getting into their prime. However, Mountain Dew has to play second-fiddle to-day to the handsome Lady Derwent, who looks as unlike having done any service as a new hat just out of the tissue-paper and bandbox. We do not hold with this bandbox work, and the terrible trial her ladyship had to undergo before passing the veterinary mill must have told on the nursing and spoiling of a prize nag. We wish the ground had been in going order that we might have seen My Lady have a

spin with Mountain Dew; for till then we shall not be too liberal in our praises, as it struck us she went rather pitchy in her walk, as well as other paces, and the way she "roached" her back at first did not look like pleasant riding. We have had enough of mere show horses—Master of Arts, Voyageur, Beechwood, and so forth. Orangeman by Angelsea, a horse of Mr. Tailby's, with length, good ends, big arms and thighs, who looked and went like a hunter, was much fancied; but there was something, with all this, wanting, for he passeth not the mill. He has the slightest inclination to be back at the knee, and, although the merest trifle out of the line, we would always prefer it the other way. He showed better two seasons back when he ran away with the first prize at the Leicester country show. Of another stamp, immensely business-like, though with the servants' stamp upon them in such company, is Balance-in-Hand, so beautifully put together, strutting about with his baggy breeches, and his stout-looking, short-necked companion Freeny—prize horses at Birmingham, which, with the mealy-coloured bay Thorpe Malsor, have figured at full length in these columns before now. Then another short, compact one, but not with the frame of Balance-in-Hand, but with a dash more blood, is Andover; and, though his white legs are over at knee, he brings the hind ones under in a style that looks like getting out of any difficulty; but with Lord Rosslyn's Gentleman-in-Black, as a hunter, we were not much taken. Rupert, from Rugby, is useful and well-made; and Peach, with more blood, a rather light but nice mare from Nottingham. Then, very hunting-like, is the third prize—Mr. Lovatt's Emperor; Mr. Cooper's chesnut; and Mr. Wood's light-boned mare, with fired hocks, from Market Overton. Mr. Bailey, of Uppingham, sent a coarse, lumbering chesnut—about the only one with nothing hunting-like about him. Good again were the four-year-olds, and among them several that we have noticed during this season. Nugentstown, the first of the four-year-olds at Islington, Tipperary and Shambally, the first and third at Birmingham, were all bowled out by the second-prize four-year-old at Islington and Birmingham, Brigadier—the second being the sour-headed, bad shouldered and slack-jointed Gaylad, a horse passed unnoticed in the lists at Islington. Beyond these were Mr. W. H. Potterton's upstanding black, by Lovett; Mr. J. E. Bennett's neat, good-moving, hunting-like, brown, by Orpheus; and Mr. Gale's Monarch, a prize four year-old, at Oundle, who falls off behind, and stands with his hind legs anything but under him. This is a verdict we don't expect to see endorsed if the same horses meet again. The hunting brood mares were well represented, as among them were Capt. Barlow's Silver Locks, the first-prize mare in this class last year at Bury; Whisky, a good-limbed old mare, and dam of Mountain Dew and Denmark; the grand lengthy-looking Maid of the Heath, with a fine forehead on a short leg; and the hunting-like good shoulder, well put together, though of less substance, Go-a-head, a mare we noticed at Thirsk last year, and who, some thought, ought to have been here first. There were three or four good specimens of hackney brood-mares, and one—Black Fanny—remarkable for her angular frame and extraordinarily drooping abdomen, showing how years and youngsters will change the nattiest of forms, as we have no doubt dark Fanny's has been in her day. British Queen is a neat round square mare; but Gipsy pleased us more, being a very varmint old mare of great character; while Mr. J. N. Beasley's well-known Geraldine was much more to our fancy than the third.

In the hacks were a few neat ones, amongst which was the Thurgarton Rose, *alias* Crisis, that wants a little more depth in her middle; yet why change the name of



so public a performer? The first prize was a vulgar round-shouldered bay; the second a park hack, verging on the light charger in formation, whilst the deep-waisted Lady Flora, the cobby Kegworth, and the showy Birthday, all of Leicester town, had something commendable about them; as two others we had almost omitted—the short, thick, drooping-quartered, quick-stepping Rosabella, a hack of Mr. Hack's, and Mr. Lund's Flora of Leeds. The cob-mares or geldings were chiefly remarkable for The Dean, Lord Roslyn's Ialington prize-cob, the best of the bunch of six a longway, but over height and out of the hunt. Almost as conspicuous was Zingara, one of those flourishing, high-going, dishing trotters that a butcher's boy might be proud of, and who, throwing her legs about "like a daddy long-legs with one foot in a tallow candle," can catch the eyes of the judges directly and get a prize; while neat hacks, like Sir A. G. Haslerigg's grey, are sent empty away. In the ponies, not exceeding fourteen hands, Matchless is a lengthy, well-formed mare, rather light of bone, but a first-rate walker; and the second, the well-known Piccadilly, is, with more substance, really a very nice little hack of fashion. The third was Pretty Seesun, very flash, with her twopenny-concert name and chignon tail.

The class of cocktail stallions to breed hunters from was very wisely abandoned; and the still more cocktail business of proving hunters by jumping was also given up at "the first asking." But nothing can look tamer or work worse than the plan of sending horses out of the ring for a certificate from the Vets, whereby all the pleasure and profit of studying the awards is too often destroyed.

Suffolk as usual was in force in the agricultural classes, but with nothing in numbers like to the armies in red there were marshalled on the flats of Battersea, or on the slopes in the ever memorable drenches of Bury. Still there were a great many of the pick of last year again in the classes, with the customary changing and shifting, making the first last and the last first; but the judging did not satisfy the Suffolk men as did the decisions at Framlingham. In the stallions not qualified to compete as Suffolks we should have gone like an arrow for the Clydesdale, the exceedingly handsome young Lofty, who in symmetry, quality, activity, freedom in the shoulders, and in the placing and formation of his beautiful short hump, is a long way ahead of Honest Tom, the well-known prize three-year-old; making allowance that is for age and the Shire being a bigger and coarser animal. The third, young Sampson, is a very useful horse, while the commended Victor struck us as being all hind-quarters like a Birmingham hansom. Amongst the stallions foaled in 1866, not Suffolks, there were some useful horses the first, Lion, being a very handsome two-year-old, a deep, compact, good-ended, well-set horse; the second, Conqueror, a big raw youngster, that looked like growing into a good one; while the third, Sandy, though coming from the Court, was but an ugly Scot. The highly commended Rutland Hero was a Shire horse, and the light-boned Major a fatal cross, we should say, between Essex and Suffolk, so far as agriculture be concerned, and one more adapted for the town van of some strong active young washerwoman doing a good stroke of business. In the Suffolks foaled before '66, Cupbearer, the four-year-old first at Framlingham in the All-Aged Class and second at Bury in the Three-year-olds, was now placed third; the first being a three-year-old, beaten by the second horse at Framlingham last week, but who beat the second at Bury. This is ringing the changes, and no mistake. The first here has an unpardonable defect, being lighter in his thigh, just below the stifle, than he is at the hock, where it is drawn in as if he had been wearing garters. Harwich Emperor did not face the tribunal. In the Agri-

cultural Mares, Jet, a deep-topped, good-ended, short-limbed active mare, with a remarkably light head and neck for her weight and inches, was first; while the second is a fine-grown mare, with queer forelegs. There was nothing to go for third honours; and in the next class the Suffolk Violet had the three prizes to pick from, Major Maitland had two handsome first and second fillies; but, for good looks, Young Lofty, the black mare Jet, and the iron-grey Lion pleased us most of all "the Agricultural Purposes."

The Leicesters at Leicester would be one of the prime features of the whole show. It is rarely that these sheep have been so generally good, while the competition in all the classes, as estimated even by mere numbers, was capitally sustained. There were but few delicate sheep, but plenty of the best breeding about, as evinced in the clean, lean heads, fine wool, and, it may be emphatically added, the firm touch. Seldom have the Leicesters handled so well, and they proved as handsomely to the eye. Mr. Borton admitted that he had never got together so good a team, more especially of shearing rams, and yet the Barton entries were fairly beaten both for first and second. Col. Inge came back to all his former excellence with a ram of fine size, great breadth, and good style; while the younger Turner and Sanday are well maintaining the repute of their father's flocks. Mr. Turner, jury, was again first for old sheep, with a son of the Bury ram so that he would seem to have quite established his own sort at Alexton; and Mr. G. H. Sanday's sheep looked a deal better done by, despite the hot weather, than they did at Bury. Mr. Borton's yearlings, chiefly by Black-eye, never showed more breeding, one being quite small and pretty, not often characteristics of the Yorkshire Leicester. Of course he had lots of prize sheep in the older class; although his best, here placed second, was nowhere at the last Royal Meeting. A prize sheep of Mr. Creswell's was now unnoticed; and such breeders as Mr. Marris, Mr. Riley, Mr. Stamper, Lord Berners, and Mr. George Turner, could reach no higher than commendations, where almost everything might have been commended. This was more pointedly observable amongst the ewes, where of course the entries were by no means so numerous; but a large majority of the pens received some notice, and the breeding ewes were really admirable illustrations of the Leicester in fair working condition.

Many of the Cotswold ram-breeders still hold off; and the once-imposing array of these grand animals has broken through. But it surely must be detrimental when Mr. Brown, of Marham, with a Norfolk-bred one, and which would have been known, until within this last year or so, as "a Norfolk Long-wool," can again beat the Hill champions, the Gilletts, King Tombs, and Beale Browne; and in these names is included the whole list of exhibitors of Cotswolds. Mr. Tombs certainly came to the rescue amongst the old sheep with his famous 210 gs. ram, bred and bought of Mr. Lane of Broadfield; but another of the Longford rams was disqualified as unfairly shorn; and amongst the ewes Mr. John Gillett was awarded the first prize for one pen, and was disqualified for the other! But, as in other cases, the condemned exhibitors are prepared to prove that all the sheep were shorn on the same day, and protests either have or will be entered accordingly.

"The other long-wools," that is to say, the Lincolns, are rapidly advancing, and made so good a front here both for numbers and merits, that the breeders might surely claim classes of their own. Certainly, from what there was to see at Leicester, if the Oxford, the Hampshire, or even the Cotswolds are entitled to such a recognition, the Lincolns are as justly admissible to the rank of a distinctive breed or variety. There were not only more of them, but they were more uniform in cha-

raeter, while they were unrivalled for wool, and tell well with the butcher. The time was when the Marshalls had it all their own way with the show Lincolns; but they could only win in their turn at Leicester, and Mr. Lynn was without a place. There are other breeders who only require bringing out, and some like Mr. Wright, of Nocton, who are becoming better known as they are more known.

There were no very "leading" sheep amongst the Oxford Downs, and a moderate and useful, but by no means "advertising" entry would be the highest compliment that could be paid them. Mr. Wallis, of Shifford, took all the chief honours, and Mr. Charles Howard could get no higher than a commendation. Mr. Treadwell's second prize old ram is a six-year-old "Brackwell" wearing wonderfully well; and Mr. Treadwell's two pens of ewes were supposed to have done a little too well, for the inspectors disqualified them both; whereupon Mr. Treadwell will call evidence on oath to the contrary. Mr. Henry Overman, as a good second for ewes, still, maintains the merit of his cross, an Oxford like the Marham Cotswold, manufactured in Norfolk, and with which they can successfully encounter the "old original."

"The sensation" of the meeting was over the Southdowns, which the judges took late in the day, so that what with the heat and the amount of competition, this trio looked to have had quite enough of it by the time they were through. Still they did not suffer their work to beat them; for never were awards more heartily approved. Nevertheless, these went in comparatively a new direction to that which has been the order of things of late. Although, to use his own words, Lord Walsingham declined to run for the first heat over his own course in Norfolk, he was now beaten, and easily beaten, in both classes of rams; as certainly the Merton sheep have seldom shown to less advantage. They were many of them loose to the hand, as here and there you come across a sheep with a heavy-hanging Hampshire head, and with little but his size to his credit. The second prize shearling, however, has been hired by his Royal Highness the Prince of Wales, and others purchased to go abroad; but if we are to preserve the true type of the Southdown, it is a nice question whether we should not go more for Lord Sondes' high-bred animals, or even for the still more dainty little "gentlemen" at Audley End. But the happy union of size with blood-like character was hit by Mr. Rigden, whose shearling is as clever a sheep of his sort as has been out for many a long day. He has a good well-coloured head, a muscular neck, a round springing barrel, and a famous hind-quarter, being beautifully let down to his hock. Then, his touch is firm, although for wool and flesh the highly-commended sheep from Hove is as good or even better than the winner. The judges, however, declared that they had no difficulty in finding their first sheep in either class, and but for one deficiency they would have recorded the best old ram as about the best they had ever met with. Of fine size, with a beautiful back and loin, and of admirable quality, this sheep has absolutely no dock, although otherwise so good to meet or follow. He was the prize shearling last year at the Brighton Meeting of the new Southern Counties Association, although with Mr. Rigden's other sheep strangely overlooked at Bury St. Edmunds. Both the shearling and two-shear winner are by the Babraham ram bought by Sir Thomas Lennard for 170 gs., and subsequently let to Mr. Rigden, so that the long price has, after all, been warranted. Lord Walsingham's ewes were really excellent, or, indeed, they could never have got before such good pens as those of Lord Radnor, the Duke of Richmond, Messrs. Heasman, and Sir William Throckmorton. The class might have been

commended, as the general show of Southdowns was very good, with a leaning observable for style and blood, in preference to the sacrifice of such essential points to mere size. The Oxford, Hampshire, or Shropshire is a good useful sheep for roughing it; but, after all, the Oxford and Shropshire owe something to the pure Down, as the Down should certainly never borrow in turn. Of the Hampshires, there was a very short and not very extraordinary show. Mr. Rawlence's ewes were not up to the Bury standard, and his old rams had but two other sheep against them. Amongst the shearlings, the Messrs. Russell, who cultivate this breed in Kent, were placed first with an animal so horribly coarse and bad about his head that it is strange how the judges could ever have passed him. But, then, a heavy lop-ear, a fiddle-pattern face, and a hang-dog expression are said to be essential properties of the Hampshires; although, at most points, Mr. King's second was surely a better sheep. He was handsomer about his head, it is true; but, at the same time, he was more symmetrical in his frame, and smarter in his carriage; and we believe that the judges divided over the award.

There was no sort of stock on the ground that showed so much "the force of circumstances" as the Shropshire sheep. Occasionally you come across a Short-horn whose owner must have gone for "the wooden spoon," or encountered a Suffolk horse that was clearly sent on the chance of his being sold at "some" price or other. But there were so many good Shropshires balanced by so many bad; and, then again, there were so many disqualified, and so many otherwise commendable amongst these outcasts, that one had to sum up with more than customary care. Our own opinion, then, is that the Shropshire made a very strong muster. Casting out the bad and indifferent on the plea of their being handy home, or on the yet more merciful consideration of the Suffolk gentleman whose great hope is that the chestnut will never go back again, there were still more really good young sheep than have been previously got together. These exhibited, moreover, leading characteristics that were pretty generally recognizable by those not engaged in this special business—for a business it is—and our first walk down the lines went to assure us that the Shropshires were being cultivated up to a certain standard of points, with more care and unanimity than has hitherto been observable. Good as were the shearlings at Bury, there were better at Leicester; and the Uffington speckle-faces had now no place. The Messrs. Crane, perhaps, a still more formidable name, were placed first with a very noble, handsome sheep, although, as with Mr. Evans last year, it was said that a better sheep from the same flock was passed over—a point of difference that may be settled at the autumn sales. Mr. Mansell was second with a capital lengthy sheep, good to meet or follow, as better when seen out than in—the true test, after all, of any animal. He was also third with another Maccaroni; and then our catalogue reads like a very labyrinth of commendations and disqualifications, that we shall not care to separate. The entries, however, of shearing rams, reached to upwards of sixty, including, amongst a somewhat curious compound of exhibitors, Lord Willoughby de Broke, Lord Wenlock, Lord Chesham, Mrs. Baker, Mr. Byrd, Mr. Mathews, Mr. Sheldon, Mr. Bradburne, Mr. Henry Smith, Mr. Beach, Mr. Thornton, and Mr. Holland, beyond those we have previously and those we need not name. Mr. Evans' best old sheep was only highly commended at Bury, although, if we remember aright, he afterwards let for more money than either the first or second, and he has gone on capitally since, having plenty of length, size, and style. The second old sheep is bad about his neck; and the third, with a plain head, has a somewhat old-fashioned

character, as, in fact, barring the winner, the rams of any age were nothing extraordinary, and Mr. Holland took the reserve number. But the shearing ewes, like the shearing rams, were capital; Mr. Evans winning with a beautiful sorty pen, wonderfully got up in the way of wool; and Lord Chesham reaching second with a very neat lot, not quite uniform about their heads, but otherwise full of style and quality. If they be not going a little away from the Shropshire type, they were amongst the prettiest sheep in the show. Mr. Coxon's ewes were far better than Messrs. Crane's, by which they stood—and that is saying something, too; while Mr. Yates was disqualified for a pen that must have been noticed had not the inspectors interfered. It is right to say that the third judge, Mr. Randell, was too ill to act, and that Messrs. Horley and Woods took the work upon themselves.

The pigs are nowhere better sorted than they now are on the prize list of the Royal Agricultural Society. The big whites and the small whites, the small blacks, the Berkshires, and the middle breeds have all classes of their own, and the arrangement seems to work very satisfactorily. The Yorkshire big pigs have lost something of their coarseness, and it is significant that the best small white boar was bred in Suffolk, although exhibited by a Manchester man. But both Messrs. Crisp and Sexton have been sending pigs northward of late, where they are pretty sure to improve their quality. The best black boar was of the Fisher Hobbs improved Essex kind, and the next best a black Suffolk; awards that point to the line which the judges are taking. Nothing can be less telling than the mere size of a monster pig, much as he may be fancied in Yorkshire; and for prize stock we need something of an "improved" character. The Berkshires were a good but not a large class; and in fact, in a majority of cases, the competition was not great; but the sample was superior; and pigs that could win at Leicester will be pretty certain to hold their own hereafter, let them travel either North or South.

Well as the show went, the General Meeting on Saturday was one of the most stormy and detrimental that the Council has ever had to encounter. It appears that at the dinner of the Central Chamber of Agriculture, on the preceding evening, Mr. Clare Sewell Read, in returning thanks on behalf of the Royal Agricultural Society, said, in the course of his remarks, that "the Society was not supported by the tenant-farmers in the way he should like to see it, while he must freely admit there was sufficient reason for such support not being accorded. He meant to say the Council was a pocket borough." And, again, he contended "that there was a set of gentlemen on that Council who did all they could, and who spoke whenever they could, against the agricultural interest, and always voted against them. In speaking in the House of Commons in favour of the Cattle Market Bill, or in favour of the Malt-tax repeal, it was very damaging to the little influence he (Mr. Read) had to have a gentleman of the Council of the Royal Agricultural Society getting up and making speeches and voting directly against the agricultural interest. They would scarcely believe that the gentleman who drew up the Report the other day against the Report of the majority of the Malt-tax Committee—a Report which said that the malt-tax was no sort of burthen to the British farmer, and who drew up a Report of the Trade in Animals Committee, which said that there ought to be the same restriction put upon English stock as was placed upon foreign cattle, was a leading member of the Council of the Royal Agricultural Society." It may be right to explain here that the Report recommending the repeal or re-adjustment of the Malt-Tax, and of which we gave the chief points last week, was only carried by the casting vote of the chairman. An opposition Report

was prepared by, as we believe, Mr. Dent, that went to declare "that the tax is easily and cheaply collected, not treading with harshness upon the operations of trade, nor injuriously affecting the retail price of beer to the consumer."—That "the evidence against the tax is generally presented by agriculturists, who complain of any impost upon their produce, as obstructing a judicious course of husbandry, and interfering with their unrestricted use of their own crops, both in supplying beer to their labourers and in feeding cattle and sheep;" but that "the evidence of the corn-dealers, and of the large brewers, and buyers of barley tends to throw doubt on their first objection; and the payment of beer in lieu of wages does not appear to your committee a sufficient reason for removing so important a branch of the revenue."—That "various propositions have been submitted as to the substitution of a beer tax in lieu of the malt duty; but your committee do not incline to look with favour upon the proposal."—That "another suggestion, to levy a licence-duty instead of the Malt-Tax, would obviously be a mere shifting of the present tax, involving considerably more trouble in its collection, and risk to the revenue, without any sufficient advantage;"—and so on.

At the General Meeting Sir George Jenkinson very properly reported the substance of Mr. Sewell Read's remarks upon the previous evening, and this gave the signal for a general attack. The little value of the Journal, the unwarrantable interference of the Journal Committee, the absurd constitution of the Implement Committee, the want of courtesy on the part of the Council, and the system on which the Council is elected, all came in turn to sustain some very severe criticism. Some, indeed, of the leading members of the direction were individually singled out by name. Thus, Mr. Thompson "admired his own mannikin," in other words, the Journal; if Mr. Acland "had his living to get as a writer, no one would think of employing him;" and Colonel Challoner, as the Chairman of the Implement Committee, was ridiculed for some certain description of prizes he still retained on the prize list. It has often been our duty to advert to the management of the Royal Agricultural Society; but never have graver charges been brought than by some of its own members at Leicester on Saturday.

## PRIZE LIST. CART HORSES.

### STALLIONS.

JUDGES.—H. Crosse, Stowmarket.  
J. Steadman, Bognall, Roslin, Edinburgh.  
A. Turnbull, Cresswell, Morpeth.

Stallion, foaled before the 1st of January, 1866 (not qualified to compete as Suffolk).—First prize, £25, W. Welcher, Upwell, Wisbeach (Honest Tom); second of £15, Earl Beauchamp, Madresfield Court, Malvern, Worcestershire (Young Lofy Clydesdale); third of £5, J. Edmondson, Extwistle, Burnley (Young Sampson). Commended: J. Henderson, Horsley-hill, South Shields (Victor).

Stallion, foaled in the year 1866 (not qualified to compete as Suffolk).—First prize, £20, H. Hitchcock, Chittern All-saints, Heytesbury (Lion); second of £10, J. Manning, Wellingborough (Conqueror); third of £5, Her Majesty the Queen, Windsor Castle (Sandy Clydesdale). Highly commended: T. Middleton, Uppingham (Rutland Hero). Commended: R. G. Salmon, Great Clacton Hall, Colchester (Major).

### SUFFOLK.

Stallion foaled before the 1st January, 1866.—First prize, £25, W. Wilson, Baylham Hall, Ipswich (The President); second of £15, T. Crisp, Bentley Abbey, Wokingham Market; third prize of £5, T. Crisp (Cupbearer). Highly commended: M. Biddell, Playford, Ipswich (Punch). Commended: T. Crisp.

Stallion foaled in the year 1866.—First prize, £20, G. D. Badham, Bulmer, Sudbury (Fitz-Emperor); second of £10, W. Wilson, Ipswich; third of £5, L. Rist, Tattingstone (Young Champion).

Agricultural Mare and Foal not qualified to compete as Suffolks.—First prize, £20, W. Tennant, Selby (Jet); second of £10, J. G. Attwater, Britford, Salisbury (Violet).

Mare and Foal.—First prize, £20, S. Wolton, jun., Woodbridge, Suffolk (Violet). No further competition.

Filly, two years old, not qualified to compete as Suffolk.—First prize, £15, R. Maple, Aston-on-Trent; second of £10, T. Baldwin, Tanworth, Hockley Heath, Warwick; third of £5, Her Majesty (Meg Clydesdale).

Suffolk Filly, two years old.—First prize, £15, Major F. M. Wilson, Bury St. Edmund's, Suffolk (Violet); second of £10, Major F. M. Wilson (Bury Empress); third of £5, I. Rist, Ipswich (Blossom). Highly commended: I. Rist (Scot).

### THOROUGHBREDS, HUNTERS, AND HACKS.

JUDGES.—J. Atkins, Brandon, Alnwick.

C. M. Nainby, Barnoldby, Grimsby.

Sir G. T. Wombwell, Newburgh Park, Easingwold.

Thoroughbred Stallion, suitable for getting Hunters.—First prize, £100, Sir G. Cholmley, Bart., Newton Rillington, Yorkshire (Angels); second of £50, W. Gulliver, Banbury (Naseby); third of £10, Earl Spencer, Northampton (General Heese).

Stallions not less than fourteen hands two inches, nor exceeding fifteen hands two inches, suitable for getting Hackneys.—First prize, £25, C. Beart, Downham Market, Norfolk (Ambition); second of £15, F. Barlow, Woodbridge, Suffolk (Lucifer); third of £5, W. King, Stamford.

Stallion not less than sixteen hands, suitable for getting Coach Horses.—No entry.

Pony Stallion under fourteen hands two inches.—First prize, £20, J. Baldock, Bingham, Notts (Little Jack Horner); second of £10, C. Groucock, Wymondham, Norfolk (King Arthur); third of £5, A. Doyle, Abergale, Denbigh (Tramp).

Hunter, mare or gelding, not less than five years old.—First prize, £50, E. Hornby, Ganton, Yorkshire (Lady Derwent); second of £25, Captain E. N. Heygate, Buckland, Leominster (Mountain Dew).

Hunter, mare or gelding, four years old.—First prize, £30, J. B. Booth, Killerby Hall, Catterick (Brigadier); second of £15, J. Drage, Northampton (Gay Lad).

Mare, in foal, or with foal at foot, suitable for breeding Hunters.—First prize, £25, J. Byron, Sleaford, Lincoln (Maid of the Heath); second of £15, Capt. E. N. Heygate (Whiskey); third of £5, J. T. Robinson, Topcliff, Thirak (Go-a-head).

Mare not less than 14 hands one inch, nor exceeding fifteen hands one inch, in foal, or with foal at foot, suitable for breeding Hackneys.—First prize, £30, F. Cook, Thixendale, York (British Queen); second of £10, W. B. Woodroffe, Loughborough, Leicester (Gipsy); third of £5, A. B. Howland, Thame (Paul).

Hackney Mare or Gelding, not exceeding fifteen hands one inch, four years old and upwards.—First prize, £20, A. Hack, Grantham; second of £10, F. Wollaston, Nuneaton, Leicestershire (Eric).

Ob Mare or Gelding, not exceeding fourteen hands one inch, four years old and upwards.—First prize, £20, C. Groucock, Wymondham (Champagne Charley); second of £10, J. Warth, Ely (Zingara).

Pony Mare, not exceeding fourteen hands.—First prize, £15, J. Warth, Ely (Machless); second of £10, F. Barlow, Woodbridge (Piccadilly); third of £5, C. Groucock, Wymondham (Pretty Secusan).

### CATTLE.

#### SHORTHORNS.

JUDGES.—G. Drury, Holker Grange, Lancashire.

T. Hunt, Thornton, Coldstream, N.B.

F. Tallant, Easbourne Priory, Midhurst.

Bull above three years old.—First prize, £25, T. C. Booth, of Warlaby, Northallerton (Commander-in-Chief); second of £15, J. Peel, Knowlton Manor, Clithero (Knight of Knowlton); third of £5, W. Calles, Bodicote House, Banbury (Huntsman). Reserve: G. R. Barclay, Kennil Dunfermline, Fifeshire (Heir of Englishman). Highly commended: J. Lynn, Church Farm, Stroxtun, Grantham (Prizeman); and F. H. Fawkes, Farnley Hall, Otley (Friar Bacon). Commended: J. Pulley, Lower Eaton, Hereford (Royal Buck); and R. Ratcliff, Walton Hall, Burton-on-Trent (Gaylad).

Bull above two and not exceeding three years old.—First prize, £25, W. H. S. Adcock, Farnish, Wellingborough (Baron Geneva); second of £15, Lady Pigot, Branches Park, Newmarket (Charles Le Beau); third of £5, T. E. Pawlett, Beeston, Sandy (Baron Warlaby). Highly commended: H. Aylmer, West Dereham Abbey, Stoke Ferry, Norfolk (General Hopewell). Commended: R. Stratton, Wall's-court, Bristol (James the First).

Yearling Bull, above one and not exceeding two years old. First prize, £25, J. Meadows, Thornville, Wexford, Ireland (Bolivar); second of £15, Lady Pigot (Rosalia); third of £5, T. Walker, Stowell Park, Northleach (The Cotswold Examiner). Highly commended: F. H. Fawkes (Fra Diavolo); and Rev. W. H. Beaver, Pencers-court, Ross, Herefordshire

(Rose Butterfly). Commended: J. Peel (Baron Beust); F. H. Fawkes (Lord Belmore); Earl Radnor (Orkney); and Lord Feversham (Manchester).

Bull Calf, above six and not exceeding twelve months old.—First prize, £10, G. S. Foljambe, Osberton-hall, Notts (Knight of the Bath); second of £5, G. S. Foljambe (Knight of the Crescent). Highly commended: F. H. Fawkes (Lord Montgomery); J. Lynn (Grand Sultan). Commended: Lord Walsingham, Merton-hall, Thetford (Wensleydale).

Cow above three years old.—First prize, £20, T. C. Booth (Lady Fragrant); second of £10, J. How, Broughton, Huntingdon (Jolly Queen); third of £5, Lady Pigot (The Queen of Rosales). Highly commended: R. Tennant, Scarcroft Lodge, Leeds (Miss Farewell); and G. Garne, Othurchill Heath, Chipping Norton (Lady Lucy). Commended: G. S. Foljambe (Cherry Blossom); C. J. Bradshaw, Alstre, Burley-on-the-Hill (Beauty); and Sir W. de Capell Brooke, Bart., Geddington Grange, Kettering, Northampton (Rose of Baby).

Heifer in-milk or in-calf, not exceeding three years old.—First prize, £15, Her Majesty (Alexandra); second of £10, Lady Pigot (The Dame of Rosales); third of £5, Lord Walsingham (Thoughtless). Commended: J. Bailey, North Lodge, Manafield (Juanita 2nd).

Yearling Heifer, above one and not exceeding two years old.—First prize, £15, J. How (Lady Anne); second of £10, T. C. Booth (Patricia); third of £5, G. Garne (Duchess of Towneley). Highly commended: T. C. Booth (Lady Gaiety). Commended: R. Tennant (Rose of York).

Heifer Calf, above six and under twelve months old.—First prize, £10, Lord Penrhyn, Penrhyn Castle, Bangor (Waterloo 27th); second of £5, B. Stratton, Walls Court, Bristol (Ariel). Highly commended: G. S. Foljambe (Flora); and Lord Penrhyn (Waterloo 26th). Commended: W. H. Beaver (Lady Culshaw).

### HEREFORDS.

JUDGES.—S. Anstey, Manabilly Farm, Far Station,

Cornwall.

W. Franklin, jun., Ascott, Wallingford.

H. W. Keary, Bridgnorth.

Bull above three years old.—First prize, £25, T. Rogers, Coxall, Brampton Bryan (Batten-hall); second of £15, J. Williams, St. Mary's, Kingland, Leominster (Sir George); third of £5, J. R. Paramore, Dinedor Court, Dinedor.

Bull above two and not exceeding three years old.—First prize, £25, J. H. Arkwright, Hampton Court, Leominster (Sir Hungerford); second of £15, T. Duckham, Bayaham Court, Ross (Reginald); third of £5, J. Taylor, Stretford Court, Leominster (Challenge).

Yearling Bull, above one and not exceeding two years old.—First prize, £25, W. Tudge, Leintwardine (Brandon); second of £15, Her Majesty (Prince Leopold); third of £5, J. R. Paramour (Chancellor).

Bull Calf, above six and not exceeding twelve months old.—First prize, £10, W. Tudge, Leintwardine (Landseer). No competition.

Cow above three years old.—First prize, £20, J. H. Arkwright (Hampton Beauty); second of £10, Her Majesty (Agnes); third of £5, H. R. Evans, jun., Swanstone Court (Stately 2nd).

Heifer in-milk or in-calf, not exceeding three years old.—First prize, £15, S. Plimley, Shrewsbury; second of £10, J. Prosser, Broadway, Gloucester (White Rose); third of £5, J. Prosser (Carrie).

Yearling Heifers above one and not exceeding two years old.—First prize, £15, J. H. Arkwright; second of £10, Her Majesty (Duchess de Brontë); third of £5, W. Tudge. Highly commended: J. H. Arkwright. Commended: T. Rogers, Coxall, Brampton Bryan (Queen of the Valley).

Heifer Calf, above six and under twelve months old.—First prize, £10, W. Tudge (Silver Star); second of £5, J. Williams, Kingland, Leominster (Flower Girl).

### DEVONS.

JUDGES.—Same as for Herefords.

Bull above three years old.—First prize, £25, G. Turner, Bramford Speke, Exeter (Albert Victor); second of £15, Viscount Falmouth, Tregethnan (Sunflower); third of £5, T. Davy, North Molton, Devon (Duke of Flitton 3rd). Highly commended: J. Bodley, Stockley Pomesoy, Crediton (Lincoln). Commended: W. Farthing, Stovey Court, Bridgewater (Master Ellic); and J. H. Buller, Downe, Crediton.

Bull above two and not exceeding three years old.—First prize, £25, W. Farthing, Stovey Court, Bridgewater (St. Audries). No competition.

Yearling Bull, above one and not exceeding two years old.—First prize, £25, J. A. Smith, Bradford Peveril, Dorchester (Triumph); second of £15, W. Farthing (Master Arthur); third of £5, J. H. Buller, Downe, Crediton. Highly commended: W. Smith, Higher Hoopers, Exeter. Commended: A. Umbers, Leamington (Captain).

Bull Calf, above six and not exceeding twelve months old.

—First prize, £10, W. Farthing (Napier); second of £5, G. Turner (Earl of Leicester).

Cow above three years old.—First prize, £20, J. A. Smith (Daisy); second of £10, W. Smith; third of £5, W. Farthing (Lady). Highly commended: Her Majesty (Rose of Denmark); and J. A. Smith (Curly).

Heifer in-milk or in-calf, not exceeding three years old.—First prize, £15, J. H. Buller; second of £10, O. Hambro, Milton Abbey, Dorset (Mary); third of £5, W. Farthing (Miss Beacie). Highly commended: Her Majesty (Princess Helena); and G. Turner (Lady Mary). Commended: G. Turner (Verbena).

Yearling Heifer, above one and not exceeding two years old.—First prize, £15, W. Smith; second of £10, J. A. Smith (Pancy); third of £5, W. Farthing (Miss Laura).

Heifer Calf, above six and under twelve months old.—First prize, £10, Her Majesty (Rose); second of £5, J. A. Smith (Picture). Highly commended: J. H. Buller. Commended: G. Turner (Lady Agnes).

#### SUSSEX.

Judges.—Same as for Herefords.

Bull above one year old.—First prize, £15, W. Marshall, Cuckfield (Napier). No competition.

Cow above three years old.—First prize, £15, J. and A. Heasman, Angmering, Arundel (Ada).

Heifer in-milk or in-calf, not exceeding three years old.—First prize, £15, J. and A. Heasman (Leicester); second of £10, W. Marshall (Caroline).

#### CHANNEL ISLANDS.

Judges.—L. P. Le Cornu, Trinity Manor, Jersey.

J. Druce, Eynaham, Oxon.  
J. Ellis, Arlington, Guildford.

Bull above one year old.—First prize, £15, C. Pallot, St. Saviour's (Sultan, Jersey); second of £10, P. Gaudin, St. Helier's, Jersey (Clement, Jersey). Commended: C. Pallot (Black-tail, Jersey).

Cow above three years old.—First prize, £15, P. Gaudin, Spring Farm, St. Helier's (Lady Bird, Jersey); second of £10, P. Gaudin (Lady Best, Jersey). Highly commended: P. Gaudin (Brunette); and Lady Berners, Keythorpe Hall, Leicestershire (Fawn). Commended: C. Pallot (Countess).

Heifer in-milk or in-calf, not exceeding three years old.—First prize, £15, C. Pallot (Shorthorn, Jersey); second of £10, P. Gaudin (Camellia, Jersey). Highly commended: P. Gaudin (Fanny, Jersey).

#### OTHER ESTABLISHED BREEDS,

Not including the Shorthorn, Hereford, Devon, Sussex, or Channel Islands breeds.

Judges.—Same as for Channel Islands.

Bull above one year old.—First prize, £15, The Duke of Buckingham and Chandos, of Stowe Park, Buckingham (Conqueror, Longhorn); second of £10, J. H. Burbury, Kenilworth (Longhorn). Highly commended: Lord Sondes, Thetford, Norfolk (Cupid, Norfolk Polled). Commended: R. H. Chapman, Nuneaton (Earl of Derby, Longhorn); and J. B. Tibbits, Kettering, Northampton (Eolipae 2nd, Longhorn).

Cow above three years old.—First prize, £15, R. H. Chapman, Upton (Brindled Beauty, Longhorn); second of £10, J. Godfrey, Wigston Parva (Red Rose, Longhorn). Highly commended: Sir J. H. Crews, Bart., Calke, Derby (Tulip 2nd, Longhorn); and Sir J. H. Crews (Lofty). Commended: P. Wright, Langley Mill, Derbyshire (Magpie, Brittany); and P. Wright (Nightshade, Brittany).

Heifer in-milk or in-calf, not exceeding three years old.—First prize, £15, R. H. Chapman (Rose of Dishley, Longhorn); second of £10, Lord Sondes, Thetford (Cherry 4th, Norfolk Polled). Commended: Lord Sondes (Kate).

#### SHEEP.

##### LEICESTERS.

Judges.—G. Leighton Osgod, by Scarborough.

G. Mann, Scawby, Doncaster.  
T. Twitchell, Willington, Bedford.

Shearling Ram.—First prize, £20, Lt.-Col. Wm. Inge, Thorpe Constantine, Tamworth; second of £10, G. H. Sanday, Holmes Pierpoint; third of £5, J. Borton, Barton House, Malton. Highly commended: G. Turner, jun., Aloxton Hall, Uppingham. Commended: Lt.-Col. Wm. Inge; G. Turner, jun. (3); J. Borton; T. Stamper, Highfield House, Oswaldkirk (3); R. W. Cresswell (3); G. Turner, Sen.

Ram of any other age.—First prize, £20, G. Turner, jun.; second of £10, J. Borton; third of £5, G. H. Sanday. Highly commended: E. Riley, Kipling Cotes Farm, Beverley; J. Borton. Commended: T. Allen, Thurmanston; T. Morris, The Chase, Uleby; G. Turner, Bramford Spoke.

Pen of five Shearling Ewes of the same flock.—First prize, £15, Lt.-Col. Wm. Inge; second of £10, J. Borton; third of £5, Lt.-Col. Wm. Inge. Highly commended: Wm. Brown, High Gate, Holm-on-Spalding Moor; Lord Berners; G. H. Sanday. Commended: T. Morris; G. Riley.

Pen of five Breeding Ewes, which have suckled Lambs until the 1st of June, 1888.—First prize, £15, Lt.-Col. W. Inge; second of £10, W. Brown. Highly commended: Lord Berners, Keythorpe Hall, Tugby; E. Riley.

##### COTSWOLDS.

Judges.—Wm. Bartholomew, Waddington Heath, Lincoln.  
C. Clarke, Scopwick, Stamford.  
R. Lord, Stanton Harcourt, Whitney.

Shearling Ram.—First prize, £20, T. Brown, Marham Hall, Downham Market; second of £10, J. Gillett, Oaklands; third of £5, J. Gillett, Minster Lovell. Highly commended: T. Brown. Commended: T. Brown.

Ram of any other age.—First prize, £20, J. K. Tombs, Langford, Lechlade; second, J. Gillett, Minster Lovell; third, T. Brown, Marham. Highly commended: T. Brown. Commended: T. Brown.

Pen of five Shearling Ewes of the same flock.—First prize, £15, J. Gillett, Minster Lovell; second of £10, T. Brown, Marham; third of £5, J. K. Tombs. Highly commended: T. Brown; J. K. Tombs.

##### LINCOLNS AND OTHER LONGWOOLS.

(Not qualified to compete as Leicesters or Cotswolds).

Judges as for Cotswolds.

Shearling Ram.—First prize, £20, R. Wright, Nooton Heath, Nooton; second of £10, C. Williams, Carlton-le-Moorland; third of £5, W. F. Marshall, Branston, Lincoln. Highly commended: R. Wright; C. Williams.

Ram of any other age.—First prize, £20, Wm. F. Marshall; second of £10, W. F. Marshall. Highly commended: Messrs. Dudding.

Pen of five Shearling Ewes of the same flock.—First prize, £15, T. Cartwright, Dunston Pillar, Dunston; second of £10, J. Pears, Meres, Lincoln; third of £5, R. Wright. Highly commended: T. Cartwright. The class commended.

##### OXFORDSHIRE DOWNS.

Judges.—E. Little, Lanhill, Chippenham.

R. J. Newton, Campfield, Woodstock.  
J. S. Turner, Chyngton, Seaford, Sussex.

Shearling Ram.—First prize, £20, G. Wallis, Old Shifford; second of £10, G. Wallis; third, J. Roberts, Caswell. Highly commended: G. Wallis. Commended: J. Bryan, Southleigh (2).

Ram of any other age.—First prize, £20, G. Wallis; second of £10, J. Treadwell, Upper Windchendon.

Pen of five Shearling Ewes of the same flock.—First prize, £15, G. Wallis; second of £10, H. Overman, Weasenham, Brandon; third of £5, Sir H. W. Dashwood, Bart., Kirtlington Park, Oxfordshire.

##### SOUTH DOWNS.

Judges as for Oxfordshire Downs.

Shearling Ram.—First prize, £20, W. Rigden, Hove, Brighton; second of £10, Lord Walsingham, Merton; third of £5, Lord Walsingham. Highly commended: Lord Walsingham; Duke of Richmond.

Ram of any other age.—First prize, £20, W. Rigden; second of £10, Lord Walsingham; third of £5, Sir Wm. Throckmorton, Buckland. Highly commended: Lord Walsingham. Commended: H. Humphrey, Ashington; the Duke of Richmond, Goodwood.

Pen of five Shearling Ewes of the same flock.—First prize, £15, Lord Walsingham; second of £10, the Earl of Radnor, Coleshill; third of £5, the Duke of Richmond. Highly commended: Sir Wm. Throckmorton. Commended: John and A. Heasman, Augmering, Arundel.

##### HAMPSHIRE AND OTHER SHORT-WOOLED.

(Not qualified to compete as Southdowns or Shropshires).

Judges as for Oxfordshire Downs.

Shearling Ram.—First prize, £20, R. and J. Russell, Horton Kirby, Dartford, Kent; second of £10, S. King, Bockhampton, Lambourn; third, R. Coles, Middleton, Norton Bavant, Warminster. Highly commended: J. Rawlence, Bullbridge, Salisbury; S. King.

Ram of any other age.—First prize, £20, J. Rawlence; second of £10, J. Rawlence; third of £5, R. Coles.

Pen of five Shearling Ewes of the same flock.—First prize, £15, J. Rawlence; second of £10, J. Rawlence.

##### SHROPSHIRE.

Judges.—T. Horley, jun., The Fosse, Leamington.

J. Woods, Clipstone, Notts.

Shearling Ram.—First prize, £20, Jas. and Ed. Crane, Shrawardine; second of £10, T. Mansell, Adcott; third of £5, T. Mansell. Highly commended: G. Griffiths. Commended: S. Griffiths; H. Smith (2); T. Mansell.

Ram of any other age.—First prize, £20, J. Evans, Uffington, Shrawbury; second of £10, J. and E. Crane, Shrawardine, Shrawbury; third of £5, C. Byard, Littywood, Stafford. Highly commended: E. Holland, M.P., Dumbleton; Lord Penrhyn; T. Jones, Malpas; Mrs. Baker; T. Horton.

Pen of five Shearling Ewes of the same flock.—First prize, £15, J. Evans; second of £10, Lord Chesham, Ladmer, Chesham; third of £5, J. Coxon, Freeford Farm, Lichfield. Highly commended: J. Beach, The Hattens, Brewood; J. and E. Crane. Commended: Lord Chesham; Lord Wenlock; T. Horton; E. Smith.

### P I G S.

JUDGES.—S. Druce, Rynaham, Oxon.

A. Edmonds, Longworth, Faringdon.  
J. B. Slater, Cammeringham, Lincoln.

Boar of a large white breed.—First prize, £10, R. E. Duckering, Northorpe, Kirton Lindsay (Victor 2nd); second of £5, J. and F. Howard, Britannia Farm, Bedford (Victor). Highly commended: W. Hardley, Larkton Hall, Malpas (Cheshire Lad).

Boar of a small white breed.—First prize, £10, Peter Eden, Cross Lane, Salford, Manchester (Lord Nelson); second of £5, W. Hutton, Addingham, Leeds, Yorkshire. Highly commended: T. Atherton, Chapel House, Speke, Liverpool.

Boar of small black breed.—First prize, £10, G. Turner, jun., Alexton (Improved Essex); second of £5, Rev. W. H. Beavor, Pencairn Court, Ross (Black Prince 4th). Highly commended: W. Hemming, Coldcott, Moreton-in-the-Marsh, Gloucestershire (Master M. Thomas).

Boars of the Berkshire breed.—First prize, £10, J. Smith, Henley-in-Arden (Young Punch); second of £5, R. E. Swanwick, Royal Agricultural College Farm, Cirencester (Othello). Highly commended: H. Humfrey, Kingstone Farm, Shrivensham.

Boar of a breed not eligible for the preceding classes.—First prize, £10, R. E. Duckering, Northorpe (Comet); second of £5, Peter Eden (King Lear 2nd). Highly commended: W. Hutton (King of the West).

Breeding Sow of a large white breed.—First prize, £10, Peter Eden (Lucy); second of £5, R. E. Duckering (Countess of Leicester). Highly commended: J. and F. Howard (Miss Kate).

Breeding Sow of a small white breed.—First prize, £10, W. Hutton; second of £5, Peter Eden (Violet). Highly commended: R. E. Duckering (Lily); T. Atherton.

Breeding Sow of a small black breed.—First prize, £10, T. Crisp, Butley Abbey; second of £5, T. Atherton, Chapel House, Speke (Formosa).

Breeding sow of the Berkshire breed.—First prize, £10, Sir W. Throckmorton (Queen); second of £5, T. Crisp. Highly commended: A. Stewart; R. Swanwick.

Breeding Sow of a breed not eligible for the preceding classes.—First prize, £10, Peter Eden (Queen of Trumps); second of £5, R. E. Duckering (Primrose). Highly commended: W. Hutton.

Pen of three Breeding Sow Pigs of a large white breed of the same litter, above four and under eight months old.—First prize, £10, M. Walker, Stockley Park (Tulip, Snowdrop, and Crocus); second of £5, R. E. Duckering (Rose, Shamrock, and Thistle). Highly commended: G. Chapman, Seasmere, Yorkshire.

Pen of three breeding Sow Pigs of a small white breed of the same litter, above four and under eight months old.—First prize, £10, Earl of Radnor; second of £5, H. Aylmer, West Dereham Abbey, Stoke Ferry, Norfolk. Highly commended: Lord Wenlock, Eborick Park, York.

Pen of three breeding Sow Pigs of a small black breed of the same litter, above four and under eight months old.—First prize, £10; second, £5. No entry.

Pen of three breeding Sow Pigs of the Berkshire breed of the same litter, above four and under eight months old.—First prize, £10, J. Smith, Henley-in-Arden; second of £5, H. Humfrey (A. B. C). Highly commended: H. Humfrey, W. Yells, and R. Swanwick.

Pen of three breeding Sow Pigs of a breed not eligible for the preceding classes, of the same litter, above four and under eight months old.—First prize, £10, R. E. Duckering ("Faith," "Hope," and "Charity"); second of £5, G. Chapman, Seasmere, Yorkshire.

### SHEEP-SHEARING INSPECTORS—

H. Bone, Ringwood, Hants.  
J. H. Workman, Rydon, Pembrokeshire.

### VETERINARY INSPECTORS—

Professor Symonds, London (Cattle).  
Professor Varnell, Yarmouth (Horses.)

### ASSISTANT INSPECTOR—

R. L. Hunt, Birmingham.

### W O O L.

JUDGES.—W. Agar, Leicester.  
W. H. Ellis, Leicester.

Six Longwoolled Hogg Fleeces.—First Prize, £10, J. Bowles, Leicester (Leicesters); second of £3, C. Barrowby, Balder, Thirsk, Yorkshire (Leicesters). Commended: O. Bosworth, Dishley, Loughborough (Leicesters).

### B U T T E R.

JUDGES.—H. E. Emberlin, The Hermitage, Oadby, Leicester.  
H. Stches, Derby.

Six pounds of Fresh Butter in one pound lumps.—First prize, £5, Agricultural Colony, Coalver, Leicester; second, Rev. George W. Stratton, Aylestone Rectory, Leicester.

### C H E E S E.

JUDGES as for Butter.

Six Cheeses, exceeding 45 pounds each.—First prize, £10, F. Spencer, Colbrook Magna, Lutterworth; second of £5, W. N. Barry, Stokes Golding, Hinckley; third of £3, Tom Cattell, Bitteswell Firs, Lutterworth.

Six Cheeses, exceeding 35 pounds each, but not more than 45 pounds.—First prize, £10, S. Wykes, Ashton Flamville, Hinckley; second of £7, W. Trivett, Market Bosworth; third of £3, Wm. Nuttall, Oroxton.

Six Cheeses, not exceeding 35 pounds each.—First prize, £10, W. Ward, Nuneston; second of £7, S. C. Pilgrim, Out Woods, Burbage, Hinckley; third of £3, John Harding, Attarnton.

Best Entry in the above classes.—Prize, £15.

To the dairymaid or servant who manufactured the best dairy.—Prize, £15.

Six Stilton Cheeses.—First prize, £10, E. Peel Smith, New Parks, Leicester; second of £7, T. M. Evans and John Stafford, Leicester; third of £3, W. Stannage, Melton Mowbray.

### THE IMPLEMENT TRIALS

In its wanderings throughout England the Royal Society has this year found a brief resting-place at Leicester; if that indeed can be called brief which involves a longer sojourn than has been the wont of the Society. For it so happens, and happens well, that the period during which the trials have to be carried out has been lengthened, so that the actual time over which the Show will extend will not be far off, if not indeed quite, ten days. This lengthening of the period of trial is a move in the right direction, and a "move" in its strictest acceptance. Hours will be given to labours to which minutes were allotted in times gone by; and *gradus par gradus* is, perhaps, after all, the best way to proceed in reforms. Let us then, with such a motto in view, begin to detail "step by step" the work of the week of trial this day, July 9th, inaugurated, and endeavour as clearly, yet as concisely as possible, to give a *vidimus* of what is done or to be done. Misled by the announcement that the trial field was only half-a-mile from the showyard, and but a short distance from the town, we wended our way to the fields, and it was only when we got beyond human, or we should say horse aid, in the shape of cabs, that we found, as one often finds in the world, that "Hope's aye a gay deceiver." The worst of it was not the walk thus involved, although under a sweltering sun and over dusty roads that was bad enough; but the difficulty to find out where the trial-fields were? Some thought they were to the right, some that they were to the left, some straight on; so this seeming to us the most feasible thing to do, we did go straight on, till gladly hailing a return cab, we were taken at once to the promised land.

Arrived at the trial-fields, we had "all the world before us where to choose"—a world comprised within the limits of a no less surface of trial-ground than 180 acres. The choice might have been difficult, where to begin, with a number of claimants for notice pressing upon us. But we have no difficulty. As in a general company "place to the ladies" in every thing is the watchword of a gentleman, so with us, in view of its time-honoured claims, "place to the ploughs" dictates our choice of a subject to start with. The plough trials were carried on in a large well-placed field to the right of that in which the greater number of steam cultivators were placed; and they began

with the *General Purpose Ploughs*, the judges being Messrs. Hipwell, Wheateley, and Bond, for the prizes for which eleven competitors entered. We name these in the order of the plots they obtained to work upon. No. 1 was occupied by Lewis, of the Salopian Iron Works, Shrewsbury, Salop. This was fitted with two wheels, skim coulter, and cast breast. No. 2 was occupied by Page and Co., of Victoria Iron Works, Bedford, and was also provided with two wheels and a cast-steel breast. No. 3 was occupied by Hitherly, of Thrussington, Leicester. No. 4 was occupied by Vickers, Snowden, and Morris, of Doncaster, Yorkshire; this was provided with a skim coulter and steel breast. Plot No. 5 was taken up by Boby, of Bury St. Edmunds, with a plough, with his oval-sectioned beam and patent wheels. No. 6 was taken up by the Howards, of Britannia Ironworks, Bedford; and No. 7 was occupied by Ball and Son, of Rothwell, Kettering, Northamptonshire. No. 8 was occupied by Cooke and Co. of Lincoln; No. 9, by Ransomes and Sims, of Orwell Works, Ipswich; No. 10, by Beadmore, of Woodhouse Eaves, Loughborough, Leicestershire; and No. 11, by Hornsby and Sons, of Grantham.

To each competitor a width of twenty-one feet was given to plough, marked off at the ends with stakes numbering the plot. After opening up the plot with a furrow to the right, and another on the left, abutting upon the plot next in position, and taking three turns, each competitor was to begin the regular work of the competition by taking four turns with a furrow six inches in depth, then four with a seven-and-a-half-inch furrow, and to finish off with a nine-inch furrow. When fairly set to work under these conditions, the trial field here was by far the most interesting of the day; rendered all the more so by the business-like order which characterized the whole proceedings, and which enabled those who watched the work to do their office with comfort and certainty of obtaining accurate results. The field was of good breadth, so that the ploughs had bouts of fairish lengths to "show their paces in," to quote for the nonce a sporting phrase. The soil was heavy—a good wheat soil of fair average quality, although in many places unequal. As may be easily supposed, the long-continued drought made the land by no means in that fine condition in which the work of a plough, and how it turns over its furrow slice, is best shown. Still the work done was, on the whole, excellent, and in some instances very superior. Without prejudice, as the lawyers say, we may thus early state our belief that the prizes will be found to rest between the three magnates of the plough world—the Howards, the Hornsby, and the Ransomes, and in all probability between the first and the last-named of these. Our own opinion so far is in favour of the work done by the Howards, which, in many respects, taking all the circumstances into account, may be classed as a very fine performance indeed; although we do not hesitate to say that the work of one or two ploughs, at some parts of their "bouts," came pretty closely up to that done by those makers more prominently mentioned. The immense advantage which the "crack" men have in such a competition over others is the admirable discipline and management which characterise the work of their respective staffs. One can see at a glance that every detail has been by them attended to, that something in and about the group tells at once that all its members are doing their very best, and mean to win if they possibly can. The very horses are part and parcel of this determination, and they show also the advantages of careful discipline and attention in the minutest details. With arrangements such as those alluded to, it is not to be wondered at that other competitors who have not these favours, at least in such perfection, should really work under a disadvantage. Some have only the merits of their implements to fall back upon; not possessing the best

means by which the implement can be worked. Thus, one of the competitors—Messrs. Vickers, Snowden, and Morris, of Doncaster—had to retire from the competition on account of their having the misfortune to have a pair of restive horses. Now, the horses of Howard, for instance, would as soon think of flying in the air as being restive in the trial field; a glance at them is quite enough to satisfy one that they know what their work is, and that they mean to do it. So steady is their pull, that under a dynamometer their draught would be found to vary within exceedingly narrow limits.

Having mentioned Vickers, Snowden, and Morris as labouring under a misfortune which they could not at the time avoid, it is only fair to them to state that this, and this alone, was the cause of their giving up the trial; it is due to them to state this, as some other idea may have taken possession of the public who were witnessing the works. And we may as well name here that this firm have introduced an innovation, or rather we should say gone back to an old practice in the construction of the plough, namely, the use of timber. This is, however, confined only to the stilts or handles, and has for its aim the doing away with the objections which many have to iron stilts, namely, their elasticity, and the difficulty there is with them to provide for the strains of heavy work. We are quite aware that this view of the superiority of timber over iron stilts is not held by all—we may say not by many; still it is a suggestive circumstance that with ordinary farm ploughmen, wooden handles are in a great number of instances preferred to iron. There is much to be said on both sides of the question, and we shall be glad to know what the judges have to offer on it?

All the ploughs tried in this class were wheel ploughs—a fact which a general spectator might or might not have taken as evidence of the superiority of this form over the swing plough, or at all events as evidence that wheel ploughs are in greater favour amongst farmers than the swing; but the swing ploughs are still held in high estimation by many, and for some classes of soils they are the only ploughs which can do good work—at least the kind of work required. The swing ploughs were tried on the Friday. On looking at those ploughs doing their work, under by no means the most favourable circumstances, and doing it with a precision and a general accuracy of results, one could not help feeling gratified at the high position which this branch of agricultural mechanism has reached; and one which has been reached by the combined influence of the prize system, and the high mechanical skill, the business-like energy, and the lavish outlay of the makers.

For the light-land ploughs, we found the following competing: (14) Cooke, of Lincoln; (18) Snowden, Vickers, and Morris, Doncaster; (22) Boby, Bury St. Edmunds; (17) Hunt and Pickering, Leicester; (16) Hornsby and Sons, Grantham; (10) Howards, Bedford; (19-20) Ball and Son, of Rothwell, Kettering (two entries); (21) Ransomes and Sims, Ipswich. The work done in this class was nearly as good, if not quite so, as the general-purpose-plough trial. That of the Messrs. Howard was thought specially good by many authorities, although a very close comparison of that done by the Messrs. Ransomes and Sims with that done by the Messrs. Howard inclined us to give the palm in favour of the Messrs. Ransomes. As the work of both lies, the judges will have something to do in deciding between the claims of these two magnates; for it is clear to our mind that the prize lies at present between them. But it was a misnomer to call this a trial of light-land ploughs, for the simple reason that it was not light land on which they worked. True, they were ploughs designed for light



land; but that did not make the trials light-land-plough trials. We look, therefore, upon this trial as to a certain extent practically useless—as useless as would be the trial of a machine with cotton as the medium upon which it operated, in place of silk for which it was designed. In a properly-arranged trial, each thing must be compatible with the other, or, to quote somewhat ludicrous, but apt enough phrase in a “concatenation accordingly.”

After the ploughs, we take up the cultivators—the harrows, clodcrushers, and roller trials coming in at a later date. The judges of these departments were Mr. Chambers, Mr. Sherborn, and Mr. Roberts; and hard work they had of it, for a more unpromising field was probably never put before a lot of competitors, who, many of them, must have inwardly felt that it was “no go,” as “no go” assuredly it was, for more than one of them. Many were the attempts made: some were placed completely *hors de combat* by breakage or other mishap; while but two, or—shall we say?—three, made out their bout; but of these three, one did remarkably good work, tearing up and smashing up the soil in fine steady style, and leaving a remarkably level sole. We have long maintained that in certain departments of agricultural mechanism special arrangements or contrivances must be made, to meet special circumstances; and the trials in this field, where the cultivators were at work, more and more convinced us of the truth of this. We had only to look at the soil, and see what a task it was to break it up—like ploughing a street—then to walk along the row of competing implements, to be able at once to point out which had no chance; and, in the face of which, the destiny of failure was plainly written. Not a high degree of mechanical knowledge was necessary to point this out; and in view of it, however much we might admire the pluck of those who did compete under what we knew at once to be most adverse circumstances, we did certainly feel that if we had been in their places we should not have thought of pluck, but of prudence: declining to compete was less of a loss to them than competing only to fail. Out of the entry only two, we may say, did their lots fairly out; and, of these two, one was the cultivation of Mr. Clay, the other that of Mr. Bentall: while the superiority of the work of the latter is that to which we have referred. So far as we saw, the work done by Bentall was the work of the day. In this class Comstock's Rotary Spader competed, and was tried; but it would have been better for the interests of the inventor had the trial on such a soil and under such circumstances been declined. The machine was far too light for the peculiarly trying work it attempted to perform; and it is a question whether it is really fitted for heavy land. The following were the competitors in this class: Sherburn, Clay of Wakefield, Coleman of Chelmsford, Ball of Rugby, Bentall of Maldon, Underhill of Newport, Salop, Hunt and Pickering of Leicester, Coleman of Northampton, and Beadmore of Loughborough.

Passing now from the field in which the cultivators by horse-power have shown in more instances than one how the work is *not* to be done, to that in which the steam cultivators are at work, we see at once that we are in possession of a power which places a wide range of work within the reach of the farmer. Taking the main field, Fowler of Leeds shows a remarkable collection of steam cultivating apparatus, remarkable alike for the number of appliances adapted for almost every kind of work connected with the preparation of the soil for crops, and also noticeable for the costliness of the whole. There are upwards of three hundred tons of machinery exhibited by this firm. They exhibit two engines of twenty-horse power, two of twelve, four of ten, and one

of eight. The twenty-horse power engines are remarkable for displaying to the fullest possible extent the use of steel in their construction—a material of only comparatively recent introduction, but which bids fair to bring about, if it has not already brought about, where used, quite a new era in machine construction, in which the maximum of strength will be obtained with the minimum of weight and, by consequence, of bulk—a fine combination, in short, of lightness and strength. The Fowlers have at work four different kinds of apparatus. The one working this morning was on the direct-action principle, which, the Messrs. Fowler uphold as the best. In this, two engines (ten-horse power each) are placed on opposite sides of the field, and are provided with winding-drums, which take up and pay out alternately the steel rope attached to the implement. The winding-drums work at and give out a steady pull at any angle; and the ease with which the advance is made at the end of each bout is not the only practically good feature connected with the system. The engine works either a five-tined cultivator for deep work at a slow speed, or a seven-tined cultivator for lighter work at a higher speed. Both these were tried this morning, the five-tined cultivator working nearly an acre in the hour, inclusive of setting down, the depth being nine inches and the breadth four feet ten inches, the width between the tines being eleven inches. The depth to which the seven-tined cultivator was worked was only eight inches, in consequence of the extreme hardness of the soil. At some parts, indeed, it was more like breaking-up a hard road or street than farm land. But such as it was, the work done was something extraordinary, and gave ample evidence of the immense advantage of steam power, well applied, in the cultivation of land.

The Messrs. Fowler have also a 14-horse power engine, with their patent clip drum attached, the system being still the direct action; but the self-moving anchor being placed on the opposite headland. This works a fire-branched plough, or a seven-tined cultivator. This apparatus was fixed to work (Saturday the 11th). They also exhibit two engines of 10-horse power each, with double-winding drums. The implements work to and fro between the engines, one of which is placed on one headland, the other on the opposite, each implement, taking only half the field, both meeting in the centre. They also have two splendid engines of 20-horse power each, with single-winding drums; the peculiarity of these is that they are arranged to work at two speeds—the slow speed with great draught, the quick speed with lighter draught. These engines are going to Louisiana, in America, for cultivating sugar plantations. The steel engine exhibited has this peculiarity, that the winding drum is placed behind the engine. The Messrs. Fowler also exhibit a new cultivator, which takes the great width of 15 feet; this is made in three sections or gangs, to allow the implement to accommodate itself to the inequalities of the ground, and an arrangement is adopted by which the tines are lifted up by the engine. A large harrow is also exhibited.

The other exhibitors in this class are the Messrs. Howard of Bedford; Hayes, of Stony Stratford, who works a Smith's cultivator; Tasker, of Andover, who also works a Smith's cultivator; Aveling and Porter, of Rochester, who work a Fowler's balance cultivator, on the round-about system. Of the apparatus of these exhibitors and of the work done we shall give a full description hereafter.

In the horse-plough field, the general purpose and the light land swing ploughs were tried in the morning and afternoon; and in both classes there was some excellent work done. In the general purpose swing ploughs the

competitors were, with the number of the plots, as follows: 27, Cooke and Co. of Lincoln; 26, Boby of Bury St. Edmunds; 25, Ransomes and Sims of Ipswich; 23, Ball and Son of Rothwell; 28, Howards of Bedford; 29, Hornsby of Grantham. These ploughs had to take three "bouts" to get a depth of 6 inches; then to take four bouts at 6½; four bouts at 7 inches; and finish off with 9-inch depth. The competitors and the number of the plots of the light land swing ploughs were as follows: 30, Ransomes and Sims; 31, Hornsby; 32, Howard; 33, Ball; 34, Cooke. These ploughs had to take three bouts to get depth, six at 5 inches, and to finish off at 6 inches. We may here again express our approval of the arrangements made by the stewards and judges of the trial-fields, so far as the ploughs were concerned; everywhere there was evidence of the directing minds of men who knew what their work was, and how to do it. We give this good word with the greater pleasure as on former occasions it has not been altogether deserved.

The trials of the deep-land wheel-ploughs took place in the afternoon of Friday, for which the following were the entries, with the number of their plots: (58) Howard, of Bedford; (59) Ransomes, of Ipswich; (60) Ball and Son, of Kettering; (61) Cook and Co., of Lincoln; (62) Hornsby, of Grantham. The conditions were that each plough was to get first into depth, then to take five bouts at ten inches, and to finish off with a depth of twelve inches. Due regard to the "propriety of things" compels us to record our opinion of this trial, that it was neither more nor less than an exhibition, if not of positive cruelty to animals, certainly of a lamentable want of consideration for them, to say nothing of that of the men employed in working the ploughs. Four horses were allowed; but the soil to be worked was honestly beyond all horse-power. It was work for the steam-engine, with its iron muscles and untiring strength; and it is impossible for anyone who loves horse-flesh to record this trial in any other way than we now record it. The clods moved in many instances exceeded in bulk, far exceeded in weight, those torn up from the iron-bound soil in the steam-cultivated field close by. We would strongly advise the exhibitors on one or two plots we wot of, to take home or get photographed some of the clods turned up, especially in one plot not twenty yards from the end, and not far from if not quite at the top. We measured one which showed a full depth of 12 inches, and would have been a good load for the Irish brick-carrier and his hod. And then, after all this terrible expenditure of muscle and will, both on the part of man and horse, the question at once came up, *Cui bono?* What practically good result to the farmer came of it? Truly not much. Certainly it showed well what horses could do in pulling through such a *bricky* soil—that's the word, nothing else—and how well-made the ploughs were; and that is all that could be said of it. It would be quite invidious to give here any critical notice of the work done: the praise due to all is that they did it at all!

At four o'clock the land rollers were put on for competition on the land ploughed by deep ploughs on Friday: all working across the furrows, and all thus getting a fair share of the work to be done in the way of some rare and heavy clods. Many here, again, were far too light, and we believe that the chances of the prize will be found to lie between two well-known makers. The competitors were as follows: (1) Hunt and Pickering of Leicester, (2) The Beverley Iron Company, (3) Crosskill and Sons of Beverley, (4) Lewis of Shrewsbury, (5) Boby of Bury St. Edmunds, (6) Amies, Barford, and Co. (2 entries), (7) Holmes and

Son of Norwich, (8) Page and Co. of Bedford, (9) Woods, Cockedge, and Co. On Monday a selected trial of clod-crushers will take place, these being taken from the previous competition:—(1) The Beverley Iron Company, (2) Crosskill of Beverley, (3) Cambridge of Bristol, and (4) Amies, Barford, and Co. Selected trials also of the ploughs will come off on Monday—the general-purpose ploughs, the light-land and the deep ploughs (wheel), as also the swing ploughs; and on Tuesday dynamometer trials of various implements are expected to come on.

On the piece of field broken up by the steam-worked cultivator of Messrs. Howard—and wonderfully well broken up it was—the clod-crushers were put to work on the afternoon of Friday. Some dissatisfaction was experienced at their being ordered on here, in place of the horse-ploughed field above—and with some reason too, as the horse-ploughed land was the most fitting for horse-worked clod-crusher to work upon. From what we have said of the cultivation of soil generally, and especially of the huge clods turned up by steam power, it will be felt that one might as well have attempted to "glean after an Irish reaper" as to do any good in reducing such clods to the condition desiderated with some of the implements employed. The majority were too light for such heavy work, and went dancing over the rough surface like cockboats in a sea with nasty cross waves on. Many also, which had weight, smoothed the surface over only, and did not break up the clods which lay beneath. The work of clod-crushers requires to be sharply looked after, as the work here will doubtless be by the judges—the same as already named for the cultivators; for a good surface, as stated above, is often made by simply abrading the tops of the clods, or by shoving some of them bodily along till they meet a depression, or hollow, into which they are crushed; while at the same time the bodies, or bulks, of the clods remain unbroken. The condition of the ground certainly afforded an excellent opportunity to show what could be done, as well as what could not be done, by an implement in this class. The following were the competitors: (1.) Cambridge and Co., of Bristol; (2.) The Beverley Iron and Waggon Company, Beverley; (3.) Woods, Cockedge, and Co., of Stowmarket, Suffolk; (4.) Barford and Co., of Peterborough; (5.) Crosskill and Son, Beverley; (6.) Ball and Son, of Kettering, Northampton; (7.) Ashby and Jeffrey, of Stamford (Paterson's patent); (8.) Hunt and Pickering, of Leicester; (9.) Coultas, of Spittlegate, Grantham; (10.) Lewis, of Shrewsbury, Salop; (11.) The Reading Iron Company; (12.) Boby, of Bury, St. Edmunds.

The subsoil ploughs began to be tried on the forenoon of Saturday, and were continued throughout the afternoon. The following is the list of competitors for this class, with the number of the plots or the order of their working, for all did not go in at once, as in the other trials. (1) Messrs. Ransome and Sims, of Ipswich; (2) Messrs. Hornsby, of Grantham; (3) Messrs. Coleman and Morton, Chelmsford; (4) Messrs. Ransome and Sims (2nd entry); (5) Messrs. Howard, of Bedford; (6) the Reading Iron Co.; (7) Mellard, of Rugeley; (8) Messrs. Howard, of Bedford (2nd entry); (9) Bentall, of Malden, Essex; (10) Messrs. Hunt and Pickering, of Leicester. Each plough was to get the depth in one round, and then to take one at 6 inches and the other at 7 inches. These depths were of course below the sole of the work of the ordinary plough which ran over the ground in the first instance, thus giving ultimately a depth of 13 inches. All the ultimate depths were to be measured from the surface. Several of the ploughs exceeded the stated depth, some going to a depth of fifteen inches.

The harrows were also tried on Saturday, on the ground ploughed by the general-purpose and light-land ploughs on the days previous. We say "tried," but we can scarcely dignify what was done with the title of "a trial," as nearly every practical man present will agree with us. The competitors for the "drag" were: (1) The Canadian Working Company; (2) Messrs. Larkworthy and Co., of Worcester; (3) Page, of Bedford; (4) Messrs. Howard, of Bedford; (5) Love, of Northampton; (6) Love, second entry; (7) Johnson, of Leicester; Bentall, of Malden; Cooke and Co., of Leicester. We shall return to this class, and meanwhile may proceed to note that the special feature of Saturday's work was the trials of the steam cultivating apparatus. These were carried on in a field excellently adapted for the purpose, and the competitors were as follows, with the number of the plots they drew: (1) Messrs. Aveling and Porter, of Rochester; (2) Messrs. Howard, of Bedford; (3) Messrs. Tasker, of Andover; (4) Messrs. Fowler and Co., of Leeds; (5) Mr. Hayes, of Stoney Stratford; (6) Messrs. Fowler and Co., of Leeds (second entry). Numbers 1, 2, and 4 began working first, and off their plots before the work was resumed by the Judges after luncheon. Nos. 3, 6, and 5 entered the field after luncheon.

No. 1, Aveling and Porter's apparatus, was on the roundabout system, working one of Fowler's cultivators, and with one of their well-known traction-engines as the moving power. No. 2, Messrs. Howard's, was also upon the roundabout system, working their own cultivator, and the engine made by Messrs. Clayton, Shuttleworth, and Co., of Lincoln. No. 3, Messrs. Fowler's clip-drum engine and self-moving anchor. All the exhibitors had to remove their apparatus from the field in which they were placed to the field in which they were worked, and to set them in the field ready for starting. All the time taken for this was marked. No. 1 (Aveling's) left the field at 9.40, entered the trial-field 9.45, and commenced work at 10.27. No. 2 (Howard's) left the field at 9.45, entered the trial-field at 10.20, and commenced work at 10.40. No. 3 (Fowler's) left the field at 10.15, entered the trial-field at 10.20, and commenced working at 10.40. The length of the plot of No. 1 (Aveling) was 278 yards and the breadth 23, and they finished the surface contained in this space at 15 minutes past one o'clock. The length of the plot No. 2 (Howard's) was 250 yards and breadth 43, and it was finished at 3 minutes past one. The length of the plot No. 3 (Fowler's) was 162 yards and the breadth 41, and the whole was finished 59½ minutes past 12. We shall in our next give the results of the trials of the other competitors.

We are glad to be able to add the last work of this day, when the relative merits of the respective apparatus were tested by the weight per square yard of soil lifted by each, and which tests we here tabulate:—

NO. OF PLOT.	NAME OF EXHIBITOR.	WEIGHT. st. lbs.
1.	Aveling and Porter, Rochester .....	29 4
2	J. & F. Howard, Bedford.....	30 6
3	Tasker, Andover .....	22 4
4	Fowler, Leeds .....	33 5
5	Hayes, Stoney Stratford .....	13 0½

Messrs. Aveling and Porter worked a Fowler's cultivator; Hayes and Messrs. Tasker a Woolston cultivator; and the Messrs. Howard and Fowler their own special implements.

Of implements there are 340 stands against 282 last year at Bury St. Edmunds; the number of entries being 6,869. The number of implement sheds is 86, 38 of these being 300 feet long each by 90 feet wide; the remainder 200

feet long. There will be in addition eight sheds for seeds and models 160 feet long by 13 feet wide, and the machinery in motion in two sheds 1,050 feet long by 20 to 25 feet wide.

Amongst the steam-cultivating apparatus set to work on the afternoon of Saturday was Fowler's No. 6, Double Winding Drum Apparatus, No. 8, being one of the second lot which entered the field—the three being No. 4, Fowler's Clip-drum and Self-moving Anchor; No. 2, Tasker's, of Andover; and No. 5, Hayes, of Stoney Stratford—both working a Smith's of Woolston cultivator. Hayes took up so much time in setting down that by the time when the day's work of the other competitors was over, he had scarcely commenced; and what he had done was anything but satisfactory. However, on the Monday morning he returned again to his plot, and was, when we were at the field, doing excellent work. The form of windlass which Hayes has invented, presents many features worthy of special notice. Let us here gather up such facts and suggestions as have been brought out by the trials of steam-cultivating apparatus on Saturday. As to the quality of the work, looking at it as it lies, there will be of course divided opinions, but with the decision of the judges resting between the work of the Messrs. Howard and the Messrs. Fowler, if not altogether in favour of the latter. Both did some fine work, and the mere weight of soil moved by each was something very striking. It is scarcely necessary to say that in consequence of the extreme drought which has for so long a period prevailed, the ground was in a very hard and baked condition, and the clods turned up were in many instances more like stones than arable soil. Still, this condition of circumstances enabled one to judge of the splendid power steam places at the disposal of the farmer. The difficulty of a decision is increased by a variety of circumstances, such as the state of the soil, and the burnt dried-up condition of the herbage, which has had the curious effect of making the smashed-up plots look, when viewed at some distance, as if they had not been smashed-up at all. This of course necessitates a close inspection over the plots themselves, and this again, in many respects, cannot give the same effect as looking over the plots as finished performances; as the French say, there is no *coup d'œil* by which the whole can be taken in at a glance, at least our eyesight did not enable us to do so. There will also be divided opinions as to the merits of the respective tackle. Messrs. Fowler's alone was on the "direct" system, all the others working on the "roundabout" plan. As in other departments, so in this, there is really much to be said on both sides, while debating upon the respective merits of the two systems. Mechanically, the "direct" system is much to be praised; but then the mechanical considerations are not alone those which should be taken into account, as the agricultural points must also be considered *pari passu*.

In gathering up the practical details of the work done on Saturday we shall give statements, showing *first* the extent of each plot; *second*, the amount of work done, or the weight of soil lifted, on each plot; *third*, the time occupied in doing the work, including setting the tackle; *fourth*, the number of people and horses employed in setting down and working the tackle; *fifth*, the depth which the implements worked, and the speed at which they worked—that is, the time they took to traverse each bout or length of the plot. We shall, after giving these, show the power of the engines doing the work so detailed; and so, by means of all these heads, afford a fair and, we believe, accurate account of what was done.

Following up the above arrangement, we find that the extent of each plot was as follows:—

No. of Plot.	Name.	Breadth. Yards.	Length. Yards.	Square yards.	Area in acres and in fractions of an acre.
1	Aveling .....	24	359	8216	1.28
2	Howard .....	46	331	10636	2.19
3	Tasker .....	46	331	9945	2.05
4	Fowler's clip-drum and self-moving anchor	46	194	8924	1.84
5	Hayes.....	—	—	—	—
6	Fowler's dbl. winding-drum .....	42	145	6090	1.36

We now come to the second head, the amount of work done, or weight of soil lifted, on each plot:—

No. of Plot.	Name.	Weight of ground moved per sq. yard in pounds.	Area of work per hour in sq. yards.	Weight in pounds.	Weight moved per hour and horse power.
1	Aveling .....	437½	9200	949050	94905
2	Howard .....	411	4458	1832340	183234
3	Tasker .....	316	2836	898016	89803
4	Fowler's clip-drum .....	430	4866	2048790	255405
5	Hayes.....	182	—	—	—
6	Fowler's dbl. winding-drum .....	502	4566	229213	239213

The results in the second column were obtained by enclosing, by means of a box of the requisite dimensions, one square yard of the land ploughed by the competing implements, and then by a spade sharply cutting down the soil all along the edges of the enclosing-box. And further, by lifting the soil clean out to the depth to which the implement worked; this being carefully done so as to expose the bottom as much as possible in the same condition in which the implement had left it: and so securing a two-fold result in the weight, and the state of the sole or pan left by the implement in passing over the ground. As regards the latter test, however, we do not place much value upon it, the area of the sole exposed being far too limited to admit of any accurate conclusions as to the average condition of the sole left by the implement over the whole plot cultivated. An examination of the column of weight of soil in pounds lifted per square yard, will show a discrepancy between that given in the table at the end of our last week's report, so far as regards the relative weight lifted by Howard and by Aveling, but it may be explained thus: Mr. Aveling objected to the decision or result arrived at by the first trial of weight; or at all events, if he did not object he expressed a wish to have his weight still further tested as compared with Howard's; the result, we believe, of five weighings having the effect of almost practically transposing the positions of the two. We come now to the third point, namely, the time occupied in doing the work including the setting of the apparatus:

No. of Plot.	Name.	Time setting down	Time working.	Total.
		h. min.	h. min.	h. min.
1	Aveling ... ..	0 48	2 48	3 36
2	Howard ... ..	1 5	2 23	3 28
3	Tasker ... ..	0 44	3 31	4 15
4	Fowler, clip drum ...	0 38	1 50	2 32½
5	Hayes... ..	1 45	—	—
6	Fowler, double winding drum ... ..	0 25	1 20	1 45

The fourth point takes the number of people and horses employed:

No. of Plot.	Name.	Men.	Boys.	Horses.
1	Aveling ... ..	5	1	none
2	Howard ... ..	5	2	8
3	Tasker ... ..	5	2	2
4	Fowler, clip drum ...	3	2	none
5	Hayes... ..	5	2	9
6	Fowler, double winding drum... ..	3	2	none

The depth at which the implements worked, and the time they took to traverse the length of bout, are shown in the following:

No. of Plot.	Name.	Average time taken to do the bout, in minutes.	Length of bout, in yards.	Speed per minute, in yards.	Depth of working, in inches.
1	Aveling ... ..	6	259	43	7 to 9
2	Howard ... ..	8	281	77	6 to 8
3	Tasker ... ..	2 5-6th	221	78	6 to 7
4	Fowler (clip) ... ..	2 5-6th	194	69	8 to 9
5	Hayes... ..	—	—	—	3 to 4
6	Fowler (double drum) ... ..	2 1-6th	145	68	10 to 11

The power of the engines and length of stroke and character of cylinder are given in the following:

No. of Plot.	Name.	Diameter of cylinder, in inches.	Length of stroke, in inches.	Nominal horse-power.
1	Aveling ... ..	10½	12	10
2	Howard ... ..	11	13½	10
3	Tasker ... ..	7½ 2 cylinders	12	10
4	Fowler (clip drum) ...	8½	12	8
5	Hayes... ..	10½	16	10
6	Fowler (double drum) ... ..	10	12	10

On Monday the fine weather still continued as in last week, but not so the heat, for that simply had increased; and no easy work was it to go through with the labours of the field. The great feature of the day was the trials of the steam cultivators under the dynamometer. A very long time was spent in getting the dynamometer arranged for work, a task of no small difficulty, if one might judge from what we saw. The result was that it was approaching evening before the trial began, at least it was far on in the afternoon—and it was late, in the evening, before work was concluded. The following affords a glance at what was

done by the judges, Messrs Bramwell, Cowper, Coleman, and Rooke; while the experiments instituted had for aim the power which each implement took to work it, the period of trial being two minutes. The first implement tried was Howard's two-furrow plough, No. 1,199; but in consequence of the state of the land only one breast was used. The time taken in going 111 yards was  $1\frac{1}{2}$  minutes, and the index of the dynamometer registered 31.03. The second bout was 113 yards; the time 2 minutes, and the index registered 36.05. The third bout showed distance 123 yards; time 1.59 minutes; register of index 4 5.09.

The second implement put under trial was Messrs. Fowler's two-furrow plough, Kent breast. The length of the bout was 87 yards; the time  $1\frac{1}{2}$  minutes, and the register of index 47.02. The second bout was 51 yards in length; the time  $1\frac{1}{2}$  minutes, and the registration of index 34.11.

The third implement put under trial was Fowler's four-furrow Kent breast, the first bout of which was 102 yards in length; the time taken 2 minutes, and the registration of index 60.98. The second bout was 119 yards in length; the time taken 2 minutes, and the index registration 67.49.

The fourth trial was Howard's four-furrow plough: the length of the bout 84 yards, the time  $1\frac{1}{2}$  minutes, the registration of index 30.61. The second bout: 117 yards; time 2 minutes, registration 52.95.

The fifth trial was of Messrs. Fowler's five-furrow digger, the first bout of which was 107 yards in length: the time taken, two minutes, and registration 63.62. The second bout was in length 108 yards: the time taken,  $1\frac{1}{2}$  minutes, and the registration of index 63.95. The following gives, in another form, the results of this day's trials:—

	Howard's 1-furrow plough.			Fowler's 2-furrow plough.		Kent-breast.		Fowler's 4-furrow plough, Kent-breast.		Howard's 4-furrow plough.		Fowler's 4-furrow digger.	
	(a) in.	(b) in.	(c) in.	(a) in.	(b) in.	(a) in.	(b) in.	(a) in.	(b) in.	(a) in.	(b) in.	(a) in.	(b) in.
Breadth .....	16	16	16	30	30	30	40	40	40	40	40	40	40
Depth .....	12	13	14	14	14	14	9	9	9	6	6	8	8
Length .....	111	113	123	87	61	102	119	84	119	107	108	107	108
Section of ground moved per trip, in square inches .....	192	208	224	435	435	390	350	240	240	400	400	400	400
Draught of implement .....	1345	1635	2465	2591	3983	3425	3224	1900	2407	3307	3485	3485	3485
Draught required to move one square inch of soil .....	7	7.8	11	5.9	8.9	9	8.1	8.0	10.0	8.4	8.45	8.45	8.45
Average .....	8.6			7.4		8.65		9.0		8.45		8.45	

The work going on in the other parts of the field was the trial of clod-crushers, with selected implements for final decision from (1) Beverley Iron and Waggon Company; (2), Amies, Barford, and Co.; (3), Crosskill and Co.; Beverley; (4), Cambridge and Co. The general-purpose-ploughs trial selection of implements for final decision was carried out in another part of the field, the following being the chosen competitors: (1) Howard, (2) Hornsby, (3) Ransomes, (4) Cooke and Co., (6) Ball and Son, (6) Lewis.

On Tuesday the dynamometer trials of the various ploughs were commenced, the ploughs being dragged by one of Messrs. Fowler's engines; the trial of the "windlasses," of the straw elevators going on in another field; while the trials of the cultivating implements for steam were conducted under the same arrangements as yesterday. The following gives a general view of the results of these last and most important trials:

The first trial was made with Howard's one-furrow breast deep plough, which took an average depth of 12 inches, with a total width of 16 inches, and the draught of which averaged a 5.6lbs. to move one square inch of soil.

The second trial was of Fowler's two-furrow deep plough, with Kent breasts or mouldboards, and which with an average depth of  $14\frac{1}{2}$  inches had an average draught of 7.4lbs. to move a square inch of soil.

The third trial was of Fowler's four-furrow plough, with Kent breasts, which with a breadth of 40 inches took an average depth of  $9\frac{1}{2}$  inches, and required a draught (average) of 8.5lbs. to move one square inch of soil.

The fourth trial was with Howard's four-furrow plough, which taking a width of 40 inches, and an average depth of 6 inches, required a draught of 9lbs. to move one square inch of soil.

The fifth trial was with Fowler's five-furrow digger, with a breadth of 50 inches, and an average depth of 8 inches, taking a draught of 8.45lbs. to move a square inch of soil.

The sixth trial was with Fowler's five-tine cultivator, which with a breadth of 50 inches, and an average depth of  $5\frac{1}{2}$  inches, took an average draught of 11.95lbs. to move one square inch of soil.

The seventh trial was with Howard's four-tine cultivator, with a breadth of 40 inches, and, taking an average depth of  $6\frac{1}{2}$  inches, took a draught of 10.5lbs. to move a square inch of soil.

The eighth trial was with Smith's (of Woolston's) three-tined cultivator, worked by Tasker and Sons, of Andover, which taking a depth of 6 inches, and a breadth of 36 inches, required a draught of 5.6lbs. to move a square inch of soil.

The ninth trial was with Howard's four-furrow digger, taking an average depth of  $5\frac{1}{2}$  inches, with a breadth of 40 inches, and required a draught of 13lbs. to move a square inch of soil.

The tenth trial was of Fowler's four-furrow digger, which taking a breadth of 40 inches, and a depth of 9 inches, required a draught of 9.8lbs. to move a square inch of soil.

The eleventh trial was of Smith's (of Woolston's) five-tine cultivator, worked by Hayes, of Stoney Stratford, which taking a breadth of 33 inches, and a depth of 4 inches, took an average draught of 16.8lbs. to move a square inch of soil.

The twelfth trial was of Fowler's nine-tine turning implement, which taking a breadth, in one case of 70, and in a second that of 90 inches, with a depth of 3 inches, took a draught of 9.5lbs. to move a square inch of soil.

The thirteenth trial was with Howard's nine-tine implement, which took a depth of  $4\frac{1}{2}$  inches, with a breadth of 90 inches. We have no record of the draught of this implement.

We have previously alluded to the magnificent display of steam-cultivating machinery exhibited on the field by the Messrs. Fowler, of Leeds. This firm had five

different systems at work in one field, in connexion with the working of which the following statements will, we are assured, be of great interest to our readers.

**1st system:** Two ten-horse power double steam engines with single winding-drums. This worked a five-tined cultivator, taking a breadth of fifty inches, and moving over the field at a speed of forty-six yards per minute: this did, at the depth of from ten to twelve inches, an amount of work equal to 8,870 square yards per hour.

**2nd system:** Two ten-horse power double engines with single winding-drums, working a seven-tined cultivator, with only six tines however working, and which took a breadth of sixty inches. The speed was forty-two and a-half yards per minute, and the work done per hour was 4,212 square yards, at a depth of eight inches.

**3rd system:** Two ten-horse power double engines with single winding-drums, working a four-furrow plough with digging breasts, taking a width of forty inches, a depth of from eight to nine inches, and going at a speed of sixty-one yards the minute, doing work per hour equal to 3,900 square yards.

**4th system:** Two ten-horse power double engines with double winding-drums, working two implements, being five and six-tined cultivators, taking respectively breadths of fifty and sixty inches, with depths from seven to nine inches. The work done was in this case 8,742 square yards.

**5th system:** One ten-horse power double engine with self-acting anchor. This worked a four-furrow plough with Kent mould-boards, taking a breadth of forty inches, a depth of nine inches, and doing per hour 3,360 square yards.

The work done in more than one instance was really something remarkable, that by the Messrs. Fowler specially so; this was very deep, with a good flat sole, and the clods were thrown up in that style so well calculated to aid the atmospheric influences, or rather to allow them to operate; for these, when allowed to act, form the best cultivators. Nor must the work done by the Messrs. Howard be overlooked, this being also very good.

As the Leicester is probably the largest of all the meetings of the Royal Agricultural Society, so also it has succeeded in obtaining the best possible site for carrying on the operations of the stock and implement shows. On an open plateau overlooking the plains below, and over which the breezes blow freely, and most welcome, an area is enclosed not far off fifty acres in extent, over which the various stands are laid out. One excellent feature is that the implement stands, containing what may be called the passive department of machinery, are arranged in two parallel rows; and, on each side comes the machinery in motion—which may be called the dynamical department, in such positions that each stand of the exhibitor who exhibits machinery in motion is exactly opposite the end of the implement stand where the machinery at rest is exhibited. This simple arrangement enables the visitor or purchaser at one stand to go at once to the other if he so desire. At the termination of each row of the implement stands are placed the words "Shed A," "Shed B," and so on: but these give no indication of the "catchword" of the catalogue so to call it, which goes by the number of the stands. Such, therefore, as are desirous to go to some particular shed, and who does not care to hunt up the index, or do not know how to do so—for the index and its catalogue are not arranged in the best possible way—would most heartily welcome some such placard at the end of the shed as this: "SHED A—Stands No. 1 to 20 inclusive." The more trouble one takes the more trouble is saved.

## PRIZES FOR IMPLEMENTS.

### JUDGES:

Steam Cultivators: J. F. Bramwell, C.E., Great George Street, London; J. Coleman, Eecrick Park, York; E. A. Cowper, Great George Street, London; J. Hemaley, Skelton, Newark; J. Rooke, Weldon Grange, Wansford.

Tile Machines and Miscellaneous: H. B. Caldwell, Moncton Farleigh, Bradford, Wilts; J. Thompson, Badmington, Chippenham; E. Wortley, Ridlington, Uppingham.

Ploughs: T. P. Dods, Anick Grange, Hexham; G. M. Hipwell, Elmore Lodge, Sutton, Surrey; J. Wheatley, Newick, Driffield.

Cultivators, Clod Crushers, Rollers, and Harrows: T. Chambers, Jun., Colkirk Hall, Fakenham; W. Roberts, Thorneyholme, Burnley; F. Sherborn, Bedford, Middlesex.

### STEAM CULTIVATION.

Special prize of a silver gilt cup and six drinking cups, offered by the Pasha of Egypt, "for the steam cultivating apparatus combining strength with usefulness, with the least amount of repairs, which cannot be readily executed in foreign parts"—Messrs. Fowler, Leeds, for their "double-engine set of tackle with single winding drum."

The best application of Steam Power for the cultivation of the Soil: First prize of £100, J. Fowler and Co.; second of £25, J. Fowler and Co., for one double drum traction engine working with a travelling disc anchor, and £25 for one traction engine working with clip drum and travelling disc anchor.

The best application of Steam Power adapted for occupations of a moderate size: First prize of £50, J. and F. Howard; second prize withheld.

Implements for Steam Cultivation, including Ploughs for Steam Power, Cultivators, Harrows, Windlasses, Anchors, Rope Porters, &c.: £12, J. Fowler and Co., for four-furrow balance plough fitted with Kent breasts and convertible into digger; £12, J. Fowler and Co., for seven-tine balance cultivator (large occupations); £12, J. and F. Howard, for five-tined cultivator (occupations of a moderate size); £15, J. Fowler and Co., for light land cultivator single acting (new implement); £8, J. Fowler and Co., for frams for harrows, rollers, &c.; £7, J. and F. Howard, for harrows; £10, J. Fowler and Co., for disc travelling anchor; £8, J. Fowler and Co., for double disc windlass on engine; £8, J. Fowler and Co., for clip drum windlass on engine; £8, J. and F. Howard, for double drum windlass on frame; highly commended, J. Fowler, for three-furrow balance French plough (deep work); J. and F. Howard, for two-furrow plough (deep work).

Tile and Brick Machines: £7 10s., J. Whitehead, for brick machine; £7 10s., J. Whitehead, for tile machine; £5, J. D. Pinfold, for brick machine.

Draining Tools: Silver medal, Hunt and Pickering.

Wheel Ploughs: (general purpose) £9, J. and F. Howard; £5, Ransomes and Sims; (light land) £6, J. and F. Howard; £4, Ransomes and Sims; (deep land) £6, Ransomes and Sims; (general purpose) highly commended, R. Hornsby and Sons; (light land) R. Hornsby and Sons; (deep land) J. Cooke and Co.; (deep land) commended, R. Hornsby and Sons.

Swing Ploughs: (general purpose) £5, J. and F. Howard; £4, Ransomes and Sims; (light land) £5, J. and F. Howard; £3, Ransomes and Sims; (general purpose) commended, J. Cooke and Co.; R. Hornsby and Sons; Ball and Son; (light land) R. Hornsby and Sons.

Subsoil Ploughs: £6, J. and F. Howard; £4, Ransomes and Sims; (digging ploughs) highly commended, R. Hornsby and Sons, J. and F. Howard, Ransomes and Sims.

Paring Ploughs: £6, Ransomes and Sims; £4, J. and F. Howard; highly commended, Ball and Son.

Cultivators: £13, E. H. Bentall; £7, C. Clay; highly commended, Hunt and Pickering.

Clodcrushers: £11, Beverley Iron Works Company; £9, Amies, Barford, and Co.; highly commended, W. Crosskill and Sons; commended, E. Cambridge and Co.

Rollers: £6, Amies, Barford, and Co.; £4, Beverley Iron Works Company; highly commended, Amies, Barford and Co.; commended, William Lewis, Holmes and Sons.

Harrows: £13, J. and F. Howard; £7, Ransomes and

Sims; highly commended, Ashby and Jeffery, W. F. Johnson, H. Denton, Holmes and Sons; commended, E. Cambridge and Co.

Miscellaneous: Silver medals, Ransomes and Sims, for turnwrest ploughs with patent wheels; Hunt and Pickering, for collection of draining tools; Amies, Barford, and Co., Peterborough, clod crusher and roller; The Beverley Iron Company, Beverley, pair of patent wrought iron wheels; Bryan Coreoran and Co., London, diamond millstone dressing

machine; J. Lee, Norton, London, tub well and pump, also nine-inch revolving Archimedian screw ventilator; Clayton and Shuttleworth, Lincoln, patent combined revolving liquid manure and drop drill; H. R. Marsden, Leeds, steam stone breaker; W. Smith, Kettering, grindstone frame for grinding reaping machine knives; W. Coleman and Peter Lowe, Northampton, combined 6-in. trough with self-supporting action; and Aveling and Porter, Rochester, patent road locomotive crane engine.

## THE BEET-SUGAR QUESTION.

BY THE OLD NORFOLK FARMER.

The history of the discovery of sugar in plants of European growth forms an important era in the annals of European commerce. It has led to the creation of a manufacture of a material that is at once a luxury and a necessary of life, a healthful condiment and an agreeable and universally acceptable auxiliary to the minor delicacies of the table. Like salt, its moderate use assists to purify the blood and materially promotes the digestion of food, imparting warmth to the system and favouring the acquisition of fat. From being in the first instance a luxury of so costly a kind as only to be obtained and enjoyed by the wealthier classes, it has now become so cheap as to be within the means of the working orders, and is in constant use in the cottages of the peasantry. Such is sugar in the domestic economy; and we propose tracing its history from the earliest period to the present time.

It is well known that, until a comparatively recent period, the only plant from which sugar was obtained was the sugar cane, a native of tropical climates, and was undoubtedly indigenous in the East Indies. It was unknown to the ancient Greeks and Romans until the time of Alexander the Great when it became known to the former through one of their generals—Nearchus—about the year B.C. 325. It was, however, used by the Hebrews, being mentioned by the Prophet Isaiah under the name of *kend*, or "sweet cane," and the extract from it was termed *sakar*, or *sheker*, which is synonymous with the Greek word for sugar, and signifies intoxication. We may trace the knowledge of this plant and the extract obtained from it from the time of Alexander, through the writings of most of the extant ancient authors. Strabo mentions its introduction into Europe by Nearchus; Varro (B.C. 66) describes a liquor pressed from the cane "as sweet as honey." Dioscorides (B.C. 35) mentions a kind of honey brought from the East Indies, "like salt, and brittle when chewed." He describes it as possessing highly medicinal qualities. Galen also prescribed it as a medicine; and Lucan, in the first century, speaks of the juice as being used as a common beverage; Arrian, as an article of commerce between India and the countries bordering on the Red Sea. Ælian, Tertullian, and Alexander Aphrodisiensis describe it as "a kind of honey extracted from the cane."

Marco Polo, the first Eastern traveller of comparatively modern times, found manufactured sugar in abundance in Bengal. This was in the middle of the thirteenth century; and at the close of the fifteenth, Vasco de Gama, having doubled the Cape of Good Hope, found that a considerable trade in sugar was carried on in the kingdom of Calicut.

It is, however, certain that before the time of either of these two last-named travellers, the cane had been introduced by the Saracens into Western Europe. Albertus Amiensis, a monk who wrote at the time of the Crusades, states that the soldiers in those expeditions derived both refreshment and support from the juice of the cane, which was then introduced into the Morea, the Island of Rhodes, and Malta, and from thence into Sicily, where it was cultivated and manufactured into sugar about the beginning of the 12th century.\* It was soon after taken to Spain, and, in the 15th century, to Madeira, the Canaries, and the Cape de Verd Islands; and thus, at the period of the discovery of the New World by Chris-

topher Columbus, it was cultivated in every part of Europe where the climate and soil were favourable to its growth.

We come now to the question respecting the introduction of the sugar-cane into the New World, on which there appears to have been a great deal of controversy. If we are to believe those eminent writers Peter Martyr and Cardinal Ximenes, who were contemporaries of Columbus, we must admit that the sugar-cane is an indigenous production both of the American Continent and of the West Indian Islands. The first of these writers asserts that it was certainly found by the Spaniards at Hispaniola upon their arrival; and the Cardinal, in a "Treatise on American Plants," asserts that the sugar-cane grew there without cultivation to a very large size, especially on the banks of the river La Plata; and this statement is confirmed by Jean de Lory, the chaplain of the Dutch garrison at Fort Coligny in 1556, who also found the cane on the banks of that river, "where no European had ever before penetrated"; and the accounts of these three writers are further confirmed by the absence of all direct evidence that Columbus conveyed it thither, and the certainty that upon his second voyage to the "Indies" the Spaniards were cultivating it at Hispaniola.

On the other hand, Professor Humboldt, after a most elaborate literary research, both in the Old and New Worlds, has come to the conclusion that the sugar-cane is not indigenous in the New World, and that the natives both of the continent and of the islands were entirely unacquainted with either the sugar-cane, rice, or any of our cereal plants, except maize; and that the first of these was most probably conveyed thither by Columbus himself. It certainly appears a confirmation of this opinion that the cane was not cultivated in Barbadoes and the British West Indies until the middle of the 15th century, or about 150 years after the discovery of America.

With such a contrariety of opinion amongst men of the most extensive learning and research, it would be impossible, even if necessary, for us in the present day to arrive at any satisfactory conclusion on this question. It is, however, enough for us to know that from the time of the occupation of the West Indies by Europeans, the best and most abundant supply of sugar has been brought to Europe from that quarter; and that up to a recent period the sugar cane has been the only plant from which it has been extracted. The experiments of science have thrown additional light on this subject within the last few years; and it is to the discoveries thus made, by which the property of yielding this most useful substance, is found to be possessed by many, if not all, other plants, that the attention of the reader is now requested.

Before, however, entering more immediately on this subject, it may be proper to state that there are two kinds of sugar, possessing different characteristics, and requiring different processes in their manufacture. The first and best of these is extracted from the cane, the Silesian beet-root, and the maple. This species of sugar crystallizes into oblique four-sided prisms, terminated by two-sided summits. The three species named are identical in their properties and composition, when similarly manipulated, except that the product of the beet-root is said to be the strongest in saccharine power, and forms the finest crystals. The manufacture of sugar from these plants is entirely a mechanical process, requiring no chemical additions or changes except the condensation of the juice, the natural effect of the heat employed.

The second kind, which is termed "a factitious" sugar, is produced from the grape and other ripe fruits, and starch or

\* In the year 1166, William II., King of Sicily, made a donation to the Monastery of Saint Benoit of a mill for grinding the sugar-cane, with all its rights, members, and appurtenances, &c., &c.—*Lactian*.



farina, such as is produced from our cereal plants and the potato. This kind is more like the East India sugar, not forming regular crystals, but settling into tufted concretions, like the head of a cauliflower. The farina being itself a residuum, obtained by a mechanical process, is converted bodily into sugar by the addition of a chemical agent. In fact, there is a considerable increase in the weight of sugar produced over that of the farina employed, so that one cwt. of the latter will yield one and a quarter cwt. of the former. This, which appears anomalous at first sight, is easily accounted for, when the process by which the transformation is effected is explained. The farina is necessarily highly dried, and it requires the addition of a large quantity of moisture to convert it into sugar; and a considerable portion of that moisture remains in the sugar when the process is completed, which constitutes the excess in the manufactured article. With regard to the grape and other ripe fruits, they contain large quantities of saccharine matter, or its bases, but in this country they bear too high a price to be employed in its manufacture. Both these factitious sugars prove, upon analysis, greatly inferior to the first kind, bearing a proportion of saccharine power of not more than 60 to 100. It is evident that, as the sugar maple does not grow in the United Kingdom, as fruits are too scarce and costly, and as the potato also has for some years borne too high a price to make its manufacture into sugar feasible, we are, with our present knowledge of the saccharine properties of plants, restricted, so far as regards home-grown sugar, to the use of the Silesian beet-root, to which we shall now address ourselves.

It was in the year 1747 that a celebrated German professor of chemistry (M. Margraaf), having found in the course of his experiments, but quite by accident, a portion of sugar in some plants, determined to make a general analysis of all plants of domestic growth. By following up this resolution, he ascertained that the Silesian beet-root yielded the largest proportion. Having made this discovery known, the beet-root began to be cultivated for the purpose in various parts of Germany; and was also introduced into Prussia by M. Achard, who in 1799 published his method of manufacturing the sugar from the Silesian beet-root, the product being then estimated at 34 per cent., and the cost at 3d. per lb.

The particular kind of beet-root from which the sugar is obtained is a species of the *Beta vulgaris*. It has a white or pinkish outside, and presents the appearance of a cellular tube, replete with a clear, transparent juice, in the large proportion of 95 or 96 of liquid to 5 or 4 of solid ligneous fibre. The physical properties to be sought for in the beet-root are firmness and brittleness of texture, perfect soundness of inside, and sweetness of juice. On being cut across, a good root will emit a creaking sound under the knife, and a slice, held up to the light, will appear semi-transparent.

So far as any practical result is concerned, the discovery by M. Margraaf remained a dead-letter, and the fact itself of the existence of sugar in the plants of European growth was looked upon rather in the light of a scientific curiosity than as possibly leading to any practical consequences. It was upwards of fifty years, and up to the close of the last century, before the possibility of turning it to account was entertained; when the necessities of a neighbouring nation led to an attempt to make the discovery available. At that period the war which was raging between England and several of the continental Powers had greatly interrupted the trade between France and the West Indian Islands, those belonging to France having been taken by the British fleets in the course of the conflict. France had also lost St. Domingo, from whence she had previously obtained her largest supply of sugar; and thus her entire supply of West India sugar and other produce was cut off. In this dilemma the French Directory, and afterwards the Imperial Government, were induced to encourage, by premiums and other means, the cultivation of the beet-root, and the manufacture of sugar therefrom. In consequence of this, large establishments were formed for the purpose in France, Belgium, and other of the continental States. The price of sugar indeed—especially when the Berlin and Milan decrees were enforced, when it rose to 4f. or 5f. per kilogramme—was of itself a sufficient stimulus; and the manufacture was accordingly prosecuted with extraordinary vigour and success. Great improvements were also made in the processes, by which the product of sugar was increased to 5 per cent. and the quality somewhat improved.

It was by this means alone (if we except what was smuggled into the continental ports, which could not be absolutely prevented) that France and the nations she had conquered obtained their supply of sugar until the restoration of peace in 1815. By the treaties then entered upon, some of the islands taken from France were restored to her, by which means the beet-sugar came into competition with cane-sugar; and the superiority of this latter gave it such a preponderance in the market that the manufacture of the beet-sugar declined, notwithstanding a heavy protective duty was imposed upon the cane-sugar of foreign growth. It is true the beet-sugar thus made was wretched stuff—such as nothing but absolute necessity would have led to its use—consequently, as soon as it came into competition with the West India product, the manufacture declined, and in 1827 was reduced to so low an ebb that it became doubtful whether it would be worth any attempt to uphold it. In 1827-8, only 4,800 tons were produced in France.

From that time, however, efforts were made to improve the processes employed in the manufacture and in the machinery. These efforts were so successful, that not only was the proportion of crystallised sugar obtained increased from five to seven, eight, and even nine per cent. in some instances, but the quality was brought up to that of the cane-sugar, the West India Muscovado. The progress of improvement has gone on continually; and now the process of manufacture, which formerly occupied many days, has been so much shortened that the beet-root taken into the factory in the morning may have its juice converted into excellent raw sugar before night. We may add that most, if not all, the beet-sugar consumed on the Continent is loaf or refined sugar; but a large quantity of raw sugar in an imperfect state is exported from France and Belgium to this country for refining purposes, one house alone importing 300 tons per week. In fact, a considerable proportion of the sugar consumed in the United Kingdom is beet-sugar; and the quality of the refined portion is so far equal to that from cane raw sugar, that no consumer would be able to tell the difference. By a pneumatic process invented by Mr. Crosley the flavour of the beet-root, which formed an objection to the sugar, is now got rid of, and the refined sugar is as free from the flavour as possible; and by the employment of the centrifugal machine the syrup is separated in the most complete manner. We have ourselves seen the black mass of saccharine matter put into this machine, and in five minutes converted into pure white raw sugar.

Many other important improvements have been of late years introduced into this manufacture. Thus in 1757 Dr. Hales discovered that, by the injection of streams of atmospheric air into liquids in a state of ebullition, whilst reducing the temperature, the evaporation is at the same time accelerated. This important experiment and its result were lost sight of for nearly a century, not being considered applicable to any useful purposes. But in 1818 Messrs. Croxley and Galsworthy, the manufacturers of sugar-works machinery, applied it experimentally in a sugar refinery, but in the first instance did not succeed. They, however, renewed the experiment in 1835 with more suitable apparatus, and with the most complete success, discovering at the same time that, by the process, the sugar was divested of whatever impure or offensive taste or smell it might possess, as was formerly the case with the beet-sugar, which was the greatest obstacle to its being used as raw sugar. The principle of this process is illustrated by the daily effect of atmospheric air, agitated by the wind, in evaporating the moisture from the earth or any substance exposed to its influence; and it is by the same means that deleterious and obnoxious gases of every kind are taken up and dispersed, so as to render the air next the earth, where alone it is applied to the subsistence of animal and vegetable life, pure and salubrious.\*

\* This principle of pneumatic evaporation is applied in a very simple but efficient way, during the winter months, by the Northern Tartars, in the preservation of milk. They place it in shallow pans, and expose it to the cold winds during frost. In a short time a dry, white, crispy substance is found on the surface, which is carefully scraped off and put into bottles. This process is repeated until the whole of the aqueous portion of the milk is evaporated, and a sweet white substance, which is essentially *sugar of milk*, is thus obtained, which may be kept any length of time, in any climate, if kept

This process was tested by Mr. Croaley in 1838, upon a quantity of syrup made in the month of June, from beet-root in a state of decomposition, and vegetating. From it he produced raw sugar of pure quality, and as strong in saccharine as the best cane sugar. In fact, when it was exhibited to some of the principal beet-sugar manufacturers at Paris, by a gentleman attached to the British Embassy, they would not believe but that it was cane sugar, and that the party was practising an imposition upon them; consequently they rejected the statement altogether.

Another important discovery was made, to the effect that by a peculiar process, refined sugar (loaf) may be made as well and as speedily from the syrups as from the raw sugar, which latter had previously been the practice. By this invention both expense, time, and labour are greatly economised, for the process has now for many years been in full operation at the best sugar factories on the continent, where, as we have already stated, loaf-sugar is much more generally used than in the United Kingdom. So greatly have the processes been accelerated by this and other discoveries, that refined sugar is now produced from the raw syrup in 48 hours. Those persons, therefore, whether in the United Kingdom or on the Continent, who embark in this manufacture, will have the advantage of the sixty years' experience, experiments, and improvements of the Continental sugar manufacturers, both in the adaptation and the application of machinery and utensils, in the immediate adoption of the most efficient processes, and in the general economisation of the entire routine of manufacture. This is no mean or trifling advantage, for vast sums have been expended and sunk in the acquisition of that knowledge on which alone the manufacturer can depend for maintaining a successful competition with the West and East India planters, but which is now open to any one who will take the trouble to acquire it.\*

In consequence of these improvements in the manufacture, the large increase in the proportion of sugar produced, the superiority of its quality, and the evident advantages the beet-sugar manufacturers possessed over the West India planters (which will presently be described), the French government a few years since considered the time was come when the former was enabled to dispense with the protection that had been hitherto given it, to enable it in its infant state to encounter the competition with cane sugar. Accordingly, in 1848, the differential duty previously levied upon imported sugar was annihilated, and the imposts on the two productions were equalized. Of course, the beet-sugar manufacturers complained heavily of this measure, and predicted the ruin of the trade. Far from this, however, they exerted themselves with increased energy both in devising means for increasing the proportion of sugar by more perfect methods of crystallisation, and the general economising of the expenses of manufacture.

In addition to the improvements enumerated above, the continental manufacturers have largely increased the power of their hydraulic presses, by which they have been enabled to obtain a greater proportion of the juice, and thereby also to compress the pulp so effectually, that it will keep for any rea-

dry. This plan, although not practicable here, might be applied to the evaporation of the sap of the maple in Canada, and would produce excellent sugar at a trifling cost.

\* A singular fact has been elicited in the progress of this manufacture, namely, that the beet root in a frozen state yields more sugar than when not frozen; but if suffered to thaw again it yields less than the usual average. It is well known in Canada that, when drawing off the sap from the sugar-maple, if the roots are bare of snow, the sap is weak in saccharine power, and the settlers have learned from the Indians to cover the ground with snow around the tree, and as soon as this begins to melt they draw off the sap, which is then sufficiently sweet. It would appear from this result, that a more definite and extensive formation of saccharine occurs under the influence of congelation, and a more perfect arrangement of the constituents of sugar, which are given as follows by the different chemists named:

	Gay Lussac.	Berzelius.	Prout.	Ure.	Kane.
Oxygen ...	50.63	49.856	53.35	50.33	11
Hydrogen...	6.90	6.879	6.66	6.29	11
Carbon ...	42.47	43.265	39.99	43.38	12
	100.00	100.00	100.00	100.00	34

sonable length of time, if placed in pits sunk in the earth. Carbonic acid also is employed in clarifying the juice, and the passing of steam from one evaporating boiler to another facilitates and cheapens the process of evaporation. The manufacture, therefore, in all its various manipulations, is now arrived at a point of perfection that admits of but little further improvement.

It will perhaps be supposed that the complete pressure of the pulp will drive it at the same time of the entire proportion of saccharine matter it contains; but this is an error. It is found, upon analysis, that the pulp still contains at least 5 per cent. of sugar, after the hydraulic press has performed its office in extracting the last possible drop of juice. It is therefore quite as valuable for feeding purposes as the whole root itself, and as such, is in constant demand with the continental farmers at 14 or 15 francs per ton. When the manufacture was established in Ireland (at Mountmelick), the farmers refused to purchase the pulp, alleging that it must be worthless after the extraction of the sugar; but a merchant of the town, in order to set an example, fed a large number of hogs with it, and found it a very profitable speculation. The question of its value for feeding purposes has long been set at rest on the continent, where it is as regularly returned to the farmers at the price named as the root is sent to the factory.

We shall next proceed to consider the question of the propriety or safety of introducing the manufacture of beet sugar into the United Kingdom, and its influence upon the system of agriculture practised, more especially in England. Before, however, going into this subject, we shall refer to those attempts that have already been made to effect this purpose, and state the causes that led to their failure.

The first of these attempts was made about thirty years since, when three establishments were formed for the purpose. One of these was near Chelmsford in Essex, the proprietors of which were the well-known firm of Marriage and Co., millers. A second was fixed in the south of Ireland, and a third in the north of that country. At the time when this took place there was no duty on indigenous sugar, for the simple reason that the Legislature had never contemplated the possibility of its being manufactured in the United Kingdom. The duty then upon West India produce was about 3d. per pound; consequently the home-made sugar, although, through the imperfection of the machinery, of an execrable quality compared with that of the colonial sugar, found purchasers at 4d. per pound, and paid the manufacturers a handsome profit. But at that period the "West India interest" was still powerful in the House of Commons, and had to be propitiated on the question of emancipation. Under the clamour, therefore, raised by that body, a very heavy differential duty was laid upon indigenous sugar, which at once stopped the works of the three factories; at the same time, acting upon an equitable and impartial principle, the Government intimated to the proprietors that, under the circumstances, if they sent in a fair estimate of their loss, they would be indemnified for it. Accordingly, Messrs. Marriage, and one of the Irish proprietors, received the full amount of their estimates; but the third, having made a claim of £15,000 for what had cost him not more than £5,000 or £6,000, it was at once returned to him, with a refusal to entertain his case at all; and he never received a shilling of remuneration.

The last case was that of the establishment at Mountmelick in Queen's County, Ireland, in 1851, which was commenced under circumstances in every respect calculated to render it both profitable to the company to which it belonged, and most valuable to Ireland, as opening up a new branch of manufacturing industry calculated to benefit all classes of the community.

It would be useless to go into the causes of the failure of this unfortunate attempt, which has tended to discourage those who were desirous of introducing so promising an enterprise into Ireland, where such sources of industry are so much wanted. That the failure of the Beet Sugar Company was in no respect owing to the soil or climate of Ireland not being adapted to the cultivation of the root was abundantly proved by the investigation undertaken by Sir Robert Kane, director of the Museum of Irish Industry, by order of the Chief Commissioner of Works in Ireland, and presented, by command of her Majesty, to both Houses of Parliament. This report, which occupies fifty-four pages, contains, amongst other interesting matters, the analysis of 118 specimens of Irish-grown beet-

roots, carefully conducted, the beet being grown in different parts of the country. The quantity or percentage of sugar they contained ranged from 3.523 (or about  $3\frac{1}{4}$ ) to 14.551 (or  $14\frac{1}{4}$ ), the low average being from large and the high from small roots. This perfectly agrees with the results of analyses, and also with those of working on the largest scale, on the Continent, where it is so well understood that the smaller the root the larger the proportion of saccharine, that the beet is planted at ten inches in the rows and about fourteen inches between the rows, in order thus to produce a dwarfed root. We select the following as specimens taken from the tables in Sir R. Kane's report:

Weight of root.		Sugar.		Weight of root.		Sugar.	
lbs. oz.	per cent.			lbs. oz.	per cent.		
0 13	.....	11 3.5		4 12 $\frac{1}{2}$	.....	9	
1 0 $\frac{1}{2}$	.....	14 $\frac{1}{2}$		5 13 $\frac{1}{2}$	.....	7 1.5	
1 1	.....	13 $\frac{1}{2}$		6 2 $\frac{1}{2}$	.....	7 $\frac{1}{2}$	
1 2 $\frac{1}{2}$	.....	13 4.5		6 5 $\frac{1}{2}$	.....	6 1.10	
2 1	.....	9 4.5		8 0 $\frac{1}{2}$	.....	3 $\frac{1}{2}$	
2 3 $\frac{1}{2}$	.....	9 $\frac{1}{2}$		8 14 $\frac{1}{2}$	.....	3 3.5	
2 6	.....	11 $\frac{1}{2}$		9 7 $\frac{1}{2}$	.....	3 $\frac{1}{2}$	
3 6 $\frac{1}{2}$	.....	20 2.5		9 8 $\frac{1}{2}$	.....	2 $\frac{1}{2}$	
3 6 $\frac{1}{2}$	.....	7 $\frac{1}{2}$					

It should be observed that the condition and quality of the soil have much to do with the proportion of saccharine, which will account for any discrepancies in the proportions of sugar in some of the above specimens; but, on the other hand, the very small proportion of sugar in the large roots compared with that of the small ones is too palpable to admit of a doubt as to the fact of the superiority of small roots for the purpose of producing sugar.

Now, by way of comparison, the report contains also the analyses of seven specimens of roots from Belgium, the results of which are as follows:

Weight of roots.		Sugar.		Weight of roots.		Sugar.	
lbs. oz.	per cent.			lbs. oz.	per cent.		
1 3	.....	10 $\frac{1}{2}$		3 8 $\frac{1}{2}$	.....	8 1.6	
2 5	.....	9 $\frac{1}{2}$		3 14	.....	7 4.5	
2 14 $\frac{1}{2}$	.....	9 $\frac{1}{2}$		5 7 $\frac{1}{2}$	.....	10 $\frac{1}{2}$	
3 3 $\frac{1}{2}$	.....	8 $\frac{1}{2}$					

If the two tables are compared, it will be found that the proportions of saccharine in the Irish beet, without any previous preparation of the soil, is, on the whole, quite equal to that in the Belgian, where the peculiar mode of cultivation (with liquid manures) and the greater coldness of the climate give a decided advantage to the root, in regard to the proportions of sugar it contains.\*

But Sir R. Kane and his coadjutors did not confine their investigations to the analysis of single roots; they also undertook to apply a more practical test, by an actual manufacture of sugar—on a comparatively small scale it is true, but sufficiently large for the purpose. They were supplied with the necessary apparatus by Mr. Croley (formerly of the firm of Croley and Galsworthy), capable of operating upon from 20 to 25 cwt. of root. The first experiment was a failure,

\* The following are the entire results of the 118 analyses: 12 contained above 12 per cent. of sugar.

9	"	between 11 and 12	"	"
19	"	"	10 and 11	"
32	"	"	9 and 10	"
18	"	"	8 and 9	"
18	"	"	7 and 8	"
2	"	"	6 and 7	"
10	"	under 6	"	"

118  
This will compare favourably with the results of the analyses of 63 specimens of Belgian beetroot, in which were—  
4 roots which contained above 12 per cent. of sugar.

4	"	"	11	"	"
14	"	"	10	"	"
13	"	"	9	"	"
8	"	"	8	"	"
6	"	"	7	"	"
4	"	"	6	"	"
—	"	"	6	"	"

† In the evidence given before the Committee of the House of Commons in 1847 it was stated by planters that the average product of crystallized sugar was not more than 6 per cent., with about an equal quantity of molasses.

owing to circumstances it is unnecessary to state here. The second was employed on ten cwt. of beetroot, and the result was as follows: 30.17 per cent. of pulp or residue, 6.51 of raw sugar, and 1.63 of molasses—in all, 8.14 of saccharine matter. There is no doubt that with proper machinery, on a large scale, and after much experience, a larger and better product would be obtained. It is the general opinion of the chemists that the whole of the saccharine matter is crystallizable, under favourable circumstances, and that the molasses are the result of extraneous matters in the juice, which to a greater or less extent counteract the crystallization: much in this respect depends upon the manure employed, both as to the per-centage of saccharine and its purity. We shall have occasion to refer to this part of the subject when speaking of the cultivation of the beetroot.

The clamour raised by political economists against the manufacture of beet-sugar in the United Kingdom is but a reiteration of what was expressed a few years since against the same object in France. Mr. McCulloch, in his Commercial Dictionary, published in 1847 (p. 1256), makes the following observations. Speaking of the plan adopted by the French Government of raising annually the duty on beet-sugar until it became equal to that on sugar from the French colonies, he says: "This system came into operation on the 1st August, 1844, and in August, 1848, the equalisation of the duties will be effected. The probability is that, if fully carried out, this project will go far to annihilate the growth of beet-sugar in France; and if so, there will be, between the present period and 1849, an increased demand in France for tropical sugar, equivalent to a part, at least, of the supply which is now derived from beetroot. The same cause which has extended the growth of beet-sugar in France—viz., its exemption from all duty, while it comes into competition with an article loaded with a heavy duty, has introduced its culture in Belgium, Germany, Prussia, and even Russia. Beetroot plantations have increased most in Silesia and Saxony, and supply a considerable portion of the sugar made use of in those countries."

Now, how has this bold prediction been verified by the facts? So signally has it failed of accomplishment that the equalisation of the duty, instead of annihilating the manufacture, has not been sufficient to protect the tropical sugar in competition; and the French Government has inflicted a differential duty of 5 francs per cwt. upon beet-sugar above what the tropical sugar pays, in order to enable the latter to meet the competition. And so far is the manufacture from having been annihilated by this increase of duty that it has increased to double its amount in 1850, as the following statement will show:

#### PRODUCE OF BEET-SUGAR MANUFACTURE IN FRANCE.

Year.	Tons.
1847-8	..... 51,716
1850	..... 100,000
1864-5	..... 147,000
1865-6	..... 275,000 (a very fine season)
1866-7	..... 215,000
1867-8	..... 210,000 to 215,000 tons expected.

This statement, which is taken from the published accounts, settle the question of the ability of the beet-sugar manufacture to stand a competition with the produce of the tropical countries, and to beat it too in the contest. The reason for such a result is obvious, when we consider the disadvantages under which the latter labours. In the first place the cane ripens all at once, and must be cut and pressed immediately, otherwise it will become too ripe; and it is equally necessary that the juice should be instantly boiled down, otherwise it will ferment and become acid, which would materially lessen the product. The cane contains about 18 per cent. of saccharine matter; but the difficulty in expressing the juice is such, that not more than 10 or 12 per cent.† is obtained, a considerable portion of it being frequently in a crystallized state in the cane, which cannot be extracted by pressure. The necessity for thus concentrating the manufacture into a short space of time renders the harvest labour expensive, and the average cost of all the West India Islands (English) in 1847 was 21s. 3d. per cwt., classed as follows: Jamaica, 22s. 7d.; Guiana and Trinidad, 25s.; Barbadoes and Antigua, 15s. 4d.; St. Kitts and Grenada, 16s. 2d.; St. Vincent, 19s. 2d.; Tobago, 17s.

There is no doubt that a great improvement has been effected in the West Indies since 1847, by the introduction of

the new processes employed in the beet-sugar manufacture in Europe, and that the expenses have been greatly reduced thereby. The following statement was given in before the Committee as the actual result of the sugar crop of that year :

Cost of cultivating and manufacturing the crop of sugar of 1847 .....	£3,390,086
Freight to Europe, at £4 per ton .....	638,228
Brokerage, insurance, landing, &c., at £3 per ton .....	478,671
	<hr/>
	£ 4,506,985
159,557 tons of sugar sold .....	4,336,930
	<hr/>
Loss.....	£ 170,055

If to the expense of cultivating and manufacturing we add the loss of 15 per cent. of the produce, on the voyage to Europe by drainage, on the sugar, and 20 per cent. on the molasses, with the frequent loss of a hoghead of sugar by its bursting from fermentation (in which case the contents are pumped up with the bilge-water), the result, as above stated, is accounted for; and, whatever improvements the West India planters may have introduced into the manufacture the last few years, the beet-sugar manufacturers will still have the advantage of being on the spot of consumption, with that of being able to make an immediate return of their capital, without the losses and expense attending a long voyage. In order to show the difference in this respect between colonial and beet sugar, we give the following account of the manufacture and product of the latter on a large scale. It was communicated to Professor Sullivan, of the "Museum of Irish Industry," by the manufacturers, Messrs. Serret, Hamoir, Duchesne, and Co. (the largest manufacturers of beet-root sugar in Valenciennes), about three years after the statement of the West India planters, as given above:

## EXPENSE.

	F.	£
Cost of 60,000,000 kilos. (or 61,607 tons) of beet at 16 <i>l.</i> (12 <i>s.</i> 11 <i>d.</i> ) per 1,000 kilos. (nearly a ton)...	960,000 ...	38,400
Cost of desiccation ... ..	300,000 ...	12,300
General expense of manufacture ...	690,000 ...	27,300
	<hr/>	
	F. 1,950,000	£78,000

## PRODUCE.

Estimating the per-centage of sugar obtained at only $\frac{1}{4}$ the 60,000,000 kilos. would give 2,700,000 kil. (about 2,700 tons) of sugar, which, duty deducted, would be worth about 1 <i>l.</i> (or 9 <i>d.</i> ) the kilo. of 2 <i>l</i> 1 <i>s.</i> 3 <i>d.</i> or about 40 <i>s.</i> per cwt. ... ..	2,700,000 ...	108,000
Molasses, estimated at 3 per cent., 1,800,000 kilos. (or 1,800 tons) at 5 <i>s.</i> (4 <i>s.</i> 0 <i>d.</i> ) per 100 kilos. (or 220 <i>l</i> bs.) ... ..	90,000 ...	3,600
Residue, or pulp, at 1 <i>l.</i> (9 <i>d.</i> ) per 100 kilos., 6,000,000 kilos. (or 68,933 tons) ... ..	60,000 ...	2,400
	<hr/>	
	2,850,000	114,000
Deduct expenses (as above) ... ..	1,950,000	78,000
	<hr/>	
Net balance to cover rent, taxes, &c. F. 900,000		£36,000

Any one acquainted with the present method of manufacture of beet-sugar will know that the present product of crystallized sugar averages much more than  $\frac{1}{4}$  per cent.; that, in fact, it is nearer 7 per cent., and in some cases 8, and even 9 per cent., while the expense of manufacture is considerably reduced. Experience has also taught the growers that the quantity of saccharine in the beet may be increased by a certain and more careful cultivation. This has been a main object of the continental growers and manufacturers, and they have succeeded beyond their expectations. One of these (M. Koechlin, a Bavarian) has even obtained as much as 17  $\frac{1}{2}$  per cent. of saccharine, which is quite equal to the average quantity in the sugar-cane, and, if generally attained, would settle the question of competition with the latter, if the Governments did not interfere. If Messrs. Serret, Hamoir, and Co., had

obtained that per-centage in the above account, instead of 4,500 tons they would have had 10,781 tons of sugar and molasses.

There is no reason whatever for the supposition that this manufacture should not succeed in the United Kingdom as well as on the Continent. The question, in point of fact, rests wholly with the agriculturists, and whether it would pay them—not as well as wheat, for it must not for a moment be supposed that the cultivation of sugar-beet would supersede that of wheat—but whether selling the roots would pay them as well as consuming them on the farm, or as growing common man-gold or turnips for the purpose? To this question we shall now address our attention.

It is notorious amongst agriculturists that the cultivation of root crops, of whatever kind, for fattening purposes is only profitable as a raw material in the manufacture of manure, and that, as such, they cannot be valued at more than eight or ten shillings per ton; the profit on the cattle not being greater than the capital employed in their purchase, and the necessary expenses of attendance, &c., entitle them to. It is a well-known practice with many, if not most, of the farmers, in making up their accounts, to charge the expenses attending the cultivation of the roots to the cattle and sheep account, without reference to or calculating their estimated value; and thus, whatever profit or returns may accrue from them is included in the increased value of the cattle. This mode of lumping together in one amount the proceeds of animal and vegetable produce is not, it is true, a strictly business-like process, but it helps the farmer over a difficulty, which is more likely to result in error than to give a correct view of the profit and loss of such species of produce. For instance, if the turnips or mangolds are consumed by cattle under cover, and the dung from that consumption is valued at ten shillings per ton of roots, how much ought to be deducted from this for the straw used in their conversion, for they cannot be made into manure without straw? The estimate of ten shillings per ton must necessarily be an arbitrary one, because it is impossible to calculate the effect of the manure upon the crops to which it is applied, the success, or otherwise, depending as much, or even more, on the season than on the manure.

This question of the value of a root crop is perhaps the most intricate and perplexing in the whole routine of agricultural accounts; and the plan of charging the cost of those crops to the debit of the cattle account is the readiest and most conclusive plan of dealing with them, however illogical the system may appear in the eyes of a regular accountant. By it, the roots being given to the cattle, which are charged with the expenses attending their cultivation and other expenses, the profit or increased value of the cattle will constitute the value of the roots relatively with whatever other food—as hay, cake, straw, &c.—may be given to them.

But it is otherwise with the crops of roots grown for sale, as in the case of the sugar-beet, for which a debtor and creditor account of the most exact and conclusive kind may be kept, and the profit or loss exactly defined. This, like all agricultural crops, will depend on the season in a great measure, but quite as much on the treatment they receive. Some of the more intelligent beet growers on the Continent have succeeded in raising fifty, sixty, and even more, tons per hectare (2*a.* 1*r.* 35*p.*) of small roots; and one farmer who cultivated them by planting instead of sowing produced 105 tons per hectare, or about 4  $\frac{1}{2}$  tons per acre, which, at 18*s.* per ton, would pay far better than any crop of cereals that can be grown. Even at the moderate produce of from 15 to 20 tons per acre, the return of from £13 10*s.* to £18 would, when the smaller expenses are taken into the account, be quite as remunerative as a cereal crop. For instance, if we take a crop of wheat at an average rate of 4 quarters per acre, and 50*s.* per qr., which may be reckoned the extreme average, of both produce and price, we have 4 quarters of wheat at 50*s.* = £10. If, again, we take the produce of sugar-beet at 15 tons per acre, and 18*s.* per ton, we obtain 15 tons at 18*s.* = £13 10*s.*, leaving a balance in favour of the beet of £3 10*s.* per acre. The wheat requires nearly twelve months to mature and harvest, besides sometimes the loss of a previous season by a fallow. The beetroot matures in five or six months, requiring no fallow, and can be turned into money as soon as it is raised, without any additional expense except cartage from the land. We have estimated the average produce of beet at the lowest

that is grown in this country; and the probability is that, with extra care, it may be raised to 20 or 25 tons per acre.

But it is not in competition with wheat or any other grain that we wish to place the cultivation of the sugar-beet; for it has been found that around Valenciennes and other places where the manufacture of beet-sugar is carried on, the produce of wheat has largely increased, both in respect to the breadth of land sown and the yield per acre. So much, in fact, has the soil been improved by the culture, that wheat and beet are alternated with the very best effect, and the farmers have increased in wealth wherever the system has been introduced. The land is manured for the beet-root, but requires none for the wheat, and the cleaning of it when under that crop is an excellent preparation for the wheat. The cultivation, therefore, of this grain is rather promoted and increased than diminished by the introduction of the manufacture of beet-sugar. The question of comparative advantage to the farmer lies between the value of the root crop consumed by cattle and its sale to the sugar manufacturer, with the option of buying the residue at a fair price for fattening purposes, for which it is better fitted than the entire root, being all solid food divested of much of the water it contained, and still holding from 4 to 5 per cent. of saccharine matter. This is another feature of the question which we have not yet touched upon, but it is a very important one. On the Continent the sale of the residue is a regular branch of the manufacture; but in some of the large manufactories in Germany and Austria it is consumed by the animals—which to a large extent are pigs—on the premises. The composition of the pulp is thus stated by Mr. Sullivan, in two cases, as worked at the Laboratory of the Museum of Irish Industry.

A SPECIMEN OF NO. 2 PULP CONTAINED, AS IT CAME FROM THE PRESS,

Albumen ...	0.652	
Pectine, &c. ...	3.313	
Sugar ...	5.060	8.363
Woody fibre ...	6.444	
Ash ...	1.208	
Water ...	83.336	
	100.000	

WHEN DRIED AT 212 DEGS. IT CONTAINED

Albumen ...	3.915	
Pectine, &c. ...	19.878	
Sugar ...	30.305	50.183
Woody fibre ...	38.870	
Ash ...	7.232	
	100.000	

NO. 3 PULP, MOIST.

Albumen ...	1.336	
Sugar ...	4.945	
Pectine ...	6.487	11.432
Woody fibre ...	11.923	
Ash ...	1.180	
Water ...	74.130	
	100.000	

DRIED AT 212 DEGS., IT CONSISTED OF

Albumen ...	5.187	
Sugar ...	19.113	
Pectine ...	25.075	44.188
Woody fibre ...	46.084	
Ash ...	4.561	
	100.000	

Dr. Sullivan has given a tabular statement of forty specimens of the composition of the beet-root in its natural state. We shall give analyses of the best and the worst of these as examples:—

BEST.

Water ...	80.623
Sugar ...	13.185
Nitrogenous substances ...	2.970
Cellulose ...	1.326
Pectine, organic acids, fat, &c. ...	0.960
Ash ...	0.936
	100.000

WORST.

Water ...	93.054
Sugar ...	3.127
Nitrogenous substances ...	1.047
Cellulose ...	0.827
Pectine, organic acids, fat, &c. ...	0.735
Ash ...	1.210

100.000

The average of these in sugar is 8.155 per cent., and when the amount of other solid substances in the residue are added to the sugar it contains, it will be seen that it amounts to as much fattening matters as the root in its natural state. This, in fact, is Dr. Sullivan's opinion as expressed relative to the tables of the analyses of both as given above. "A comparison," he says "between these numbers and those given at page 40 of the preceding report, leads to the singular result that pulp is as nearly as possible of the same value as raw beet, one constituent merely replacing another. In the raw beet the sugar forms the preponderating constituent belonging to the class of non-nitrogenous substances capable of being assimilated by animals. In the pulp, a considerable part of the sugar is replaced by pectine, which fills the same office as food."

These analyses are very important as settling the question of the feeding properties of the pulp after the juice has been extracted. The proportion of pulp in beet, according to the same authority, is about 30 per cent. of the entire weight, so that nearly one-third of the crop of beet is thus returned to the land when purchased by the grower. The difference in the amount of sugar in the two specimens given above is to be accounted for by the difference of soil, manure, and general treatment of the crop. But where these important matters are more strictly attended to, with the view to the cultivation of the root expressly for manufacturing purposes, there is no reason to doubt that the result will be quite as good and as uniform as in France or any other part of the Continent.

We have hitherto confined our remarks on the working of the beet-sugar manufacture to that of France; but it has extended itself into all the continental states with quite as much success as in that country, as the following statement will show:

QUANTITY OF BEET-SUGAR MANUFACTURED IN GERMANY.

The Zollverein.

	Tons.
1864-5 .....	170,000
1865-6 .....	185,000
1866-7 .....	200,000
1867-8 .....	estimated at 165,000

Austria.

1864-5 .....	85,000
1865-6 .....	70,000
1866-7 .....	90,000
1867-8 .....	estimated at 95,000

Russia.

1849-50 .....	1,620
1851-52 .....	3,833
1854-55 .....	5,424
1855-56 .....	4,924
1856-57 .....	6,364
Coarse sugar, not included above .....	6,087
1858-59 .....	15,000
1866 .....	80,000

The most extensive sugar-works of the Zollverein are those at Waghhausen, in Bavaria, at which 80,000 metrical quintals (of 2 cwt. each) are manufactured annually; and the number of men in constant employment is 500, whilst during the busy season it is increased to upwards of 2,000. This establishment belongs to a company, and is a very flourishing concern.

In Russia the beet-root sugar manufacture is continually increasing; and new and extensive works are rising up in every part of the country. Enough sugar is now manufactured to nearly supply the whole population. The consumption has been more than doubled within the last few years, and now averages two pounds per head of the whole population. There is an abundance of capital; and new companies are continually being formed, and are much encouraged by the Government, whose main commercial policy is to exclude as

much as possible foreign importations, by rendering the country independent, manufacturing as much as possible at home, and imposing heavy duties on foreign productions.

In Austria, sugar-making from beetroot and distilleries from the potato are conducted on a large scale in the aggregate, although in the first instance the sugar-works were small. The introduction of both these industrial employments took place in 1830, and between that time and 1840 115 sugar-works were erected; but it was found not to yield a profit on a small scale, and many of them were consequently stopped, reducing the number at work to 108, although some larger establishments of the same kind had been erected. Still, the manufacture is not so extensively carried on as in France, the agricultural distilleries, of which there are upwards of sixteen thousand in Austria, being preferred. A few years since, the extent of land employed in cultivating the beetroot was about 32,000 acres, producing about nine tons of beet per acre, or, in round numbers, 300,000 tons. This yielded 438,380 cwts. of crystallized sugar, 182,000 cwts. of molasses, and upwards of 30,000 tons of *megasse*,\* or residue. The latter is employed in feeding cattle and swine. Upwards of 20,000 persons are employed in this manufacture during the five winter months, when all agricultural work is suspended in Northern Germany. It is therefore so far a great boon to the rural population; and as Austria has no sugar colonies, such an indigenous manufacture is beneficial to the country at large.

It was feared when the beet-sugar movement first commenced in France that the occupation of so much land as it would require would materially interfere with and reduce the cultivation of cereal produce and the rearing of cattle. So far, however, is this from having been the result, that the product of both has largely increased—in proof of which, an inscription is to be seen over the gate of Valenciennes to the effect that since the introduction of this manufacture into that and the surrounding districts the production of wheat has increased from 122,500 quarters to 143,180, and the number of cattle reared and fattened from 700 to 11,500. Not only so, but wherever this branch of industry has been introduced, the agriculturists have become wealthy; while, by the employment of so many hands during the five winter months (which were formerly idle ones, or nearly so), the condition of the rural populations is greatly improved; and this is the case throughout the continent wherever the manufacture has been carried on with spirit.

No reason or cause whatever exists to prevent this manufacture from succeeding in the United Kingdom as well as on the Continent, if entered upon with spirit by the manufacturer, and well supported by the agriculturists. This latter, in fact, is the pivot upon which the question of success chiefly hinges; and when the farmer becomes convinced that his interest is concerned in its promotion, and that instead of its *impoverishing* it will *enrich* the soil, and afford him a living profit and something beyond it, and that he can fatten more stock with the residuum of the roots with a portion of artificial food than he now does, there is no fear that he will hesitate to second the enterprise with his utmost efforts, esteeming those who engage in it as the farmers' true friends.

### THE GRASS.

The grass, the grass, the beautiful grass,  
That brightens this land of ours,  
Oh, why do we rudely let it pass,  
And only praise the flowers?  
The blossoms of spring small joys would bring,  
And the summer-bloom look sad,  
Were the earth not green, and the distant scene  
In its emerald robe not clad.

Then sing the grass, the beautiful grass,  
That brightens this land of ours;  
For there is not a blade by nature made  
Less perfect than the flowers.

\* This will give not more than ten tons of roots to every ton of saccharine matter, or one ton of crystallized sugar to every 13½ tons of roots, and one ton of molasses to about 33 tons of roots. This is a very large proportion of saccharine, amounting to nearly 10 per cent. The account is official.

The grass, the grass, the feathery grass,

That waves in the summer wind,  
That stays when the flowers all fade and pass

Like a dear old friend, behind;  
That clothes the hills and the valley fills,

When the trees are stripped and bare:

Oh, the land would be like a wintry sea,  
Did the grass not linger there.

Then sing the grass, the bonny green grass,

That to all such a charm can lend;

For 'tis staunch and true the whole year through,  
And to all a faithful friend.

The grass, the grass, the bountiful grass,

Oh, well may the gift endure,

That never was meant for creed or class,

But grows for both rich and poor.

Long may the land be rich and grand

Where the emerald turf is spread;

May the bright green grass, when from earth we pass,

Lie lightly o'er each head.

Then sing the grass, the bountiful grass,

That stays like a dear old friend;

For whatever our fate, it will kindly wait,

And serve us to the end.

### SONG OF THE HAY-MAKERS.

BY ELIZA COOK.

The noontide is hot, and our foreheads are brown,

Our palms are all shining and hard;

Right close is our work with the wain and the fork,

And but poor is our daily reward.

But there's joy in the sunshine, and mirth in the lark,

That skims whistling away over head;

Our spirits are light, though our skins may be dark,

And there's peace with our meal of brown bread.

We dwell in the meadows, we toil on the sod,

Far away from the city's dull gloom;

And more jolly are we, though in rags we may be,

Than the pale faces over the loom.

Then a song and a cheer for the bonny green stack,

Climbing up to the sun wide and high;

For the pitchers and rakers, and merry hay-makers,

And the beautiful Midsummer sky.

Come forth, gentle ladies—come forth, dainty sirs,

And lend us your presence awhile;

Your garments will gather no stain from the burs,

And a freckle won't tarnish your smile.

Our carpet's more soft for your delicate feet

Than the pile of your velveted floor;

And the air of our balm-swathe is surely as sweet

As the perfume of Araby's shore.

Come forth, noble master, come forth to the field,

Where freshness and health may be found;

Where the wind-rows are spread, from the butterfly's bed,

And the clover bloom falleth around.

Then a song and a cheer for the bonny green stack,

Climbing up to the sun wide and high;

For the pitchers and rakers, and merry hay-makers,

And the beautiful Midsummer sky.

"Hold fast!" cries the waggoner, loudly and quick,

And then comes the hearty "Geo-wo!"

While the cunning old team-horses manage to pick

A sweet mouthful to munch as they go.

The tawny-faced children come round us to play,

And bravely they scatter the heap;

Till the tiniest one, all aspent with the fun,

Is curled up with the sheep-dog, asleep.

Old age sitteth down on the hay-cock's fair crown,

At the close of our labouring day,

Add wishes his life, like the grass at his feet,

May be pure at its "passing away."

Then a song and a cheer for the bonny green stack,

Climbing up to the sun wide and high;

For the pitchers and rakers, and merry hay-makers,

And the beautiful Midsummer sky.

## ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

## THE GENERAL MEETING OF THE MEMBERS.

The usual meeting of the members of the Society was held on the Saturday in the show week on the ground. Lord Berners presided in the absence of the Duke of Richmond, who was unavoidably detained in town.

On the motion of Lord Bridport, seconded by Lord Cheham, a vote of thanks was accorded to the Mayor and Corporation of Leicester for their reception of the Society. On the motion of Col. Kingscote, M.P., seconded by Mr. Sanday, a vote of thanks was also passed to his Highness the Viceroy of Egypt for the gold cup presented by his Highness for competition among the makers of agricultural implements. Mr. Shuttleworth moved and Mr. Millward seconded a vote of thanks to the railway companies for the facilities given by them in the conveyance of stock and implements to the show. Mr. Brandreth Gibbs moved and Mr. Cantrell seconded a vote of thanks to the local committee for their exertions to promote the success of the meeting.

Sir G. JENKINSON wished to call attention to a speech made by Mr. C. S. Read at the Chamber of Agriculture dinner on the previous evening—a speech which he thought was very detrimental to the interests of the Royal Agricultural Society, although he did not suppose that Mr. Read would have said what he did without considering that he had some good ground of complaint. Mr. Read said in substance that the tenant-farmers of England were not in sufficient numbers supporters of the Society, and he was not surprised at this being the case, considering the treatment they received and the management of the council. Mr. Read further said that the council was a close borough, that how he got in he did not know, and how soon he got out he did not care. Mr. Read also said that members of the council voted against the interests of the agricultural classes instead of supporting them. These were heavy charges for a member of the council to make, and as they would go forth to the world it was very important that they should not remain uncontradicted or unexplained if possible.

Mr. SAMUEL SIDNEY was not prepared to endorse all that had been said by Mr. Read. It could not be said that the council was a close borough, as there had been a constant increase in the number of members representing the tenant-farmer interest. Since the Society met at Salisbury it had made changes of a very important character; but although it had done that, he believed in the opinion of persons much more influential than himself, there was a great deal more change wanted. Nine years since, when the council elected a secretary and an editor of the *Journal*, they disappointed the whole agricultural body; and as the council was now about to elect another gentleman, who was to combine the offices of secretary and editor, it was to be hoped that the same mistake would not be repeated. One of the most important things the council had to do was to publish its *Journal*, which ought to be one of the most popular hand-books of the kind in the kingdom. The other day the chairman of the *Journal* committee—a body which he (Mr. Sidney) thought ought not to exist at all—expressed himself perfectly satisfied with the *Journal*. It was an old saying, that every monkey admired its own mannikin (laughter) and this must be the case with Mr. Thompson, for although in the *Journal* there were occasionally valuable papers; still, as a general rule, the papers were unquotable. Mr. Thompson might be valuable as a railway director, and would probably be a member of the next House of Commons; but he did not know how to make the *Journal* of the Society useful and interesting at the same time. However, Mr. Thompson made the person who was under him do as he liked, and that was one reason why the *Journal* was dull. Mr. Acland, who also exercised a great deal of influence in the management of the *Journal*, took a double first-class at Oxford; but if Mr. Acland had his living to get as a writer, nobody would think of employing him; for, although his language was good, and his grammar perfect, he wanted style. The Society would not get a first-rate man to be editor of its *Journal* if he was to have a *Journal* Committee sitting over him. Such a com-

mittee might be useful in a financial point of view; but no newspaper, no journal, no magazine had ever succeeded except it had been managed by one man: he might receive suggestions, but he must not be under orders. To pass on to another committee—the implement committee—presided over by Colonel Challoner. When Colonel Challoner founded the Society, thirty years since, he rendered an essential service; but if the implement committee now comprised gentlemen who kept pace with the spirit of the age, we should not have such absurdities as the Royal Agricultural Society giving prizes for swing-ploughs—an implement which, if not abandoned, ought to be abandoned, being false in mechanical principles. If the council proceeded on the idea that what was right in 1839 would do equally well in 1869, it would not command the confidence of the agricultural world. He found, with regard to the appointment of secretary and editor, that some members of the council wanted a perfect gentleman, of good standing, who could speak all the European languages, who was a good chemist, who had a knowledge of mechanical science, who was a first-rate accountant, and who could write a considerable number of articles himself. Now, it was the editor's business to draw out from the tenant-farmers of the United Kingdom all the good solid information he could get. Talented contributors might be obtained, and it would be good policy to engage such gentlemen, and pay them at a good rate—twelve or fifteen guineas per sheet—instead of, as now, filling up the *Journal* with bits and scraps and translations from a French paper, which nobody cared to read. The Society had flourished on aristocratic support; but, if it were to go on, it must turn to the tenant-farmers to swell its numbers. If the Society did not advance, it could not live; and the merely having a good show, and making a good deal of money, was not promoting the cause of agriculture.

Mr. T. WILLSON said when he and the mayor of Leicester attended a meeting of the council, as members of the local committee, the treatment they experienced quite justified him that the council was a close borough. Lord Lerna was kind enough to say that he and the mayor might sit in the committee-room; but, afterwards, a member of the council came out and peremptorily ordered him and the mayor out of the room. He (Mr. Willson) hoped that the gentlemen of the Manchester local committee would be allowed to sit in the council-room, if they were not allowed to vote. He did not think the council ought to dismiss the secretary without calling together the members of the whole Society; for he had never seen a secretary who had performed his duties better than Mr. Hall Dare. The members of the Society ought to determine whether that gentleman was to be turned out to satisfy a clique.

Mr. MASFEN, of Wolverhampton, generally supported the course taken by Mr. Read. Mr. Willson had just used the word "clique." Now he (Mr. Masfen) thought a clique was bad in everything, certainly it was a bad thing in the Royal Agricultural Society of England.

Col. KINGSOTE, M.P., thought the Society was much indebted to Sir G. Jenkinson, for calling attention to Mr. Read's speech, as unless the accusations of Mr. Read were answered, the Society could not be otherwise than damaged by them. But his firm belief was that those accusations could be fully met, and that it could be shown that there was no favour or affection in the election of members of the Council. He believed Mr. Read had stated that no tenant-farmer, who was a member of the Council, could bring forward any motion without being immediately set on one side. He (Col. Kingscote) had attended most of the Council meetings; he could only remember one proposition which had been brought forward by Mr. Read, and his belief was, that it was not rejected. As regards the election of members of the Council, nothing could be fairer; the country was mapped out into districts, to each district so many members of the Council were appointed; and supposing that any member of the Council died or went out in rotation, another member was immediately appointed from that district. Although there might not be many tenants,



farmers on the Council, still there were many independent farmers upon it—men like Mr. Bowley, Mr. Torr, Mr. Randall, Mr. Turner, Mr. Edmunds, Mr. Sanday, and Mr. Riden. Tenant-farmers could not be expected to come up to London from Northumberland or for long distances; the Society must have upon the Council gentlemen who, if not actual tenant-farmers, were still practical agriculturists. He entirely denied that the Council was a clique. It was to be regretted that tenant-farmers did not subscribe more generally to the Society; but it must be remembered that they subscribed to county local shows which had sprung from the Society.

Col. CHALLONER said it had been insinuated that the Council was a self-elected body; but the fact was that the Council was elected by members of the Society (Cries of "No, no"). He repeated it; the members of the Society elected not only the council, but the trustees, the president, and the vice-president. At the general meeting the Council recommended such and such names in a list, but if any one present wished to strike out a name from the list; or introduce another, he could do so. With regard to himself, it was not his fault, but his misfortune that he had now done the work of the Society for twenty-four or twenty-five years. He was quite willing to resign his post as chairman of the implement committee; his resignation would save him many a journey to London when he would willingly be doing something else. If Mr. Sidney went into Scotland and abused swing-ploughs, he would be abused himself. The management of the Society could not have been so very wrong for the last twenty years, seeing how it had increased in numbers, in capital, and in everything else.

Mr. GEORGE TURNER, as a tenant-farmer and member of the Council, denied that his suggestions had not been listened to; on the contrary, they had been received with as much attention as any made by the Duke of Richmond or any one else.

Mr. SEWELL READ, M.P., said some of his remarks appeared to have been totally misconceived, for when he had attended the meetings of the Council, any suggestions, which he had made had always been received with the greatest courtesy, and carried a fair amount of weight with it. He had not said either that tenant-farmers were not represented on the Council; but what he did say was, that the Council was a close borough. He now learnt for the first time, from Col. Challoner, that the members of the Council were elected by the great body of the members. But there was a gentleman, Mr. Robert Smith, of Exmoor, who was excluded from the Council the other day; and who excluded him? Why the Council, not the general body of the members. If the members of the Society were to take an active interest in the election of the Council, voting papers must be sent round to them. What he said on the previous evening was not uttered in anger, but in sorrow, and in endeavouring to account for the small number of members of the Society, which some years since had 7,000 members, while it had now rather less than 6,000.

Mr. H. S. THOMPSON said if members would not attend the general meetings how could they know how the business of the society was carried on? He maintained that the election of the members of the council was conducted upon sound principles, for the society did not want to have upon its council a certain number of farmers living within 50 or 60 miles of London; what it wanted was to have members of the council selected from all parts of England, so as to get at the opinions of every district. And this was what was now done. As to the diminution in the number of members mentioned by Mr. Read, it was rather apparent than real, as it arose from the greater stringency with which the payment of arrears was enforced: there never was a time when the society had more subscribing members. As to the general result attained, no one who looked round the show-yard could say that the management had been very unsuccessful. It was always open to any member to make suggestions to the council, and any suggestions so made would be decided on its merits. As to the management of the *Journal*, it came out twice a year, and was intended as a work of reference, containing the best articles which could be obtained upon different subjects; while a paper which came out once-a-week, was read and then torn-up, was naturally made as light and amusing as possible; there was a distinction between the two classes of literature. And where was the work which contained more sterling articles than the *Journal* of the Society—giving as it did articles from the pens of such writers as Lawes, Playfair, Way, and Curtis?

Lord BRIDPORT thought that Mr. Read had not made himself acquainted with the rules of the Society. As to the complaint made by Mr. Willson of a want of courtesy, he (Lord Bridport) must disclaim all knowledge of Mr. Willson and the Mayor of Leicester having been ordered out of any room.

The discussion was continued by Mr. May, Mr. Bottley, Mr. Calves, and Mr. Shuttleworth, the latter gentleman remarking that twenty-three out of the fifty members of the council were farmers, while three were implement-makers, so that it could not be said that the farmers or implement-makers were not represented on the council; moreover twelve out of fourteen suggestions recently made by the implement-makers had been carried out by the council.

Mr. WILLSON moved that voting-papers should in future be sent out.

Col. CHALLONER said, by the terms of the charter of the society the management was entirely confided to the council. Any suggestion would, however, have due consideration.

After further remarks from Mr. Masfen, Mr. Thompson, Mr. H. B. Caldwell, Col. Kingscote, M.P., and Mr. Baldwin,

The CHAIRMAN expressed his belief that the more the management of the society was discussed the better it would be found to be.

Thanks were then voted to the Duke of Richmond for his conduct as president during the past year, and a similar vote having been accorded to the chairman of the day, the proceedings terminated.

## COUNTY FINANCE.

The Select Committee appointed to inquire into the present mode of conducting the financial arrangements of the counties in England and Wales have agreed to the following report—

1. That it appears by the evidence given before the Committee by persons residing in various counties of England—

1st. That the administration of the financial business of counties has been hitherto conducted by the magistrates with a general regard to economy.

2nd. That, nevertheless, a desire prevails on the part of county ratepayers to place the county finance more directly under their own control, by means of elected representatives to be associated with the magistrates in the expenditure of the rate.

3rd. That this desire appears to arise generally from considerations of public policy, but also, in some instances, from a want of sufficiently detailed information as to county expenditure.

2. That this Committee, judging from the general tenour of the evidence, believes that a system of financial control, of which the following shall form the principal provisions, would be satisfactory to the ratepayers:—

1st. That the boards of guardians in counties should elect representatives, who should be admitted to take part in and vote at all meetings of magistrates held in such counties for the consideration of questions of county expenditure.

2nd. That in cases where a Poor-law Union is situated in more than one county, a representative may be elected in each county where there are at least six parishes or townships; and that where there is a less number, the parishes or townships should be added to the adjoining union for the purposes of election.

3rd. That committees appointed for the purpose of managing the finances of separate departments should consist of an equal number of magistrates and representatives, each body electing its own members of such committees.

3. That this Committee is of opinion that the mode of keeping the public accounts should be uniform in all counties; that a detailed statement of them should be published in some newspaper of the county at least once in each year, and be forwarded to each board of guardians; and that some officer should be appointed for the audit of public accounts.

4. That the clerk of the peace of every county shall be elected by the court of quarter sessions,

## FOREIGN AGRICULTURAL GOSSIP.

The report of the Marseilles Docks and Warehouse Company just issued states that the movement of wheat at Marseilles, which began to make itself apparent in the autumn of 1866, acquired a great extension in 1867. In 1867, the quantity disembarked on the quays of the Arene and Napoleon basins was 74,372 tons, to which must be added 46,425 tons which arrived by steamers, making the total quantity dealt with in the company's docks last year 120,797 tons. Almost the whole of this wheat was conveyed from the company's quays to trucks, and out of the whole 120,797 tons, only 33,874 tons went into warehouse. The movement of wheat has continued on nearly the same large scale during the current year. Thus from January 1 to March 31 this year there were imported into the docks 13,987 tons by steamers, and 43,823 tons by sailing or steamships, making a total of 57,810 tons. It is not perhaps generally known that the French gentlemen who attended the Leicester meeting of the Royal Agricultural Society did so as a delegation from the Society of Agriculturists of France. So long since as June 9, M. Drouyn de Lhuys addressed the following letter to the Duke of Richmond, President of the Royal Agricultural Society: "Paris, June 9, 1868.—Monsieur le Duc,—The Society of Agriculturists of France, which has been just founded at Paris, has chosen me for its President. It is in this capacity that I have the honour to-day to address myself to you, desiring as we do at the outset of our labours to enter on friendly relations with the eminent Royal Agricultural Society of England. We shall be happy, Monsieur le Duc, to follow in your steps, and all the communications which you may be good enough to address to us will be of great value. Our object is the same; we devote our common efforts to the prosperity of agriculture. It is, then, with eagerness that we shall seize the approaching occasion to strengthen that inviolable bond which already unites us, by sending our delegates to the great exhibition of July 12th to July 21st, prepared by the Royal Agricultural Society of England. The secretary-general of the Society of Agriculturists of France will have the honour to send to the secretary-general of your society the names of our delegates; and we feel assured, beforehand, of the sympathetic reception which they will meet with in your great meeting.—I have, &c., DROUYN DE LHUYS." The Duke of Richmond replied as follows: "London, June 12.—Monsieur, I have the honour to acknowledge the receipt of the letter in which you are good enough to inform me that you have been appointed president of the Society of Agriculturists of France. Permit me to assure you that the society over which I have the honour to preside will be very happy to send you all possible communications, and to put itself entirely at the disposal of those members of your association who may be able to attend our meeting at Leicester in July.—I have, &c., RICHMOND." The delegation which eventually attended the Leicester meeting was composed as follows: M. Drouyn de Lhuys, president of the new society; Comte Charles de Bouillé, the Comte de Courcy, M. Grandean, M. Lecouteau (secretary-general), M. Bonna, M. Tiersonnier, and the Vicomte de Tocqueville; M. Decauville, jun., was attached to the commission in the capacity of secretary. Some other delegates had been designated by the council to attend the meeting, but personal engagements detained them at home at the last moment. Several members of the society also proceeded to Leicester as simple visitors, the list of these latter including MM. Albaret, Pillet, Gérard, the Marquis de Leizer, &c. While the Society of Agriculturists of France has been thus establishing intimate relations with the Royal Agricultural Society of England, it has committees at work preparing programmes for approaching exhibitions. One of these commissions, presided over by M. Hervé-Mangon, has already completed its projects of organization as regards competitions of machinery. The date of the next general meeting of the society will be fixed by the council as soon as possible, but it will not take place until after the close of the now nearly-completed French harvest. The society is obtaining new members from day to day. Thus in the fortnight ending July 14th, 18 founder members, 23 ordinary members, and 21 delegate members caused their names to be inscribed upon the

society's books. The society now comprises, taking into account the new adhesion, 10 perpetual members, 1,069 founder members, 129 ordinary members, and 30 delegate members—making a general total of 1,238. The subscriptions which have been received have been paid over to the account of the treasurer of the society, Baron James de Rothschild, and have been employed in the purchase of French funds. In consequence of the disappearance of the rinderpest, the not very oppressive restrictions and precautions which remained in vigour on the eastern and northern frontiers of France, as well as on the coasts of the Channel, have been entirely removed. Two customs establishments alone in the département of the Bas-Rhin have been excepted, and continue to apply the system of preliminary inspection as to the sanitary condition of cattle imported from abroad. These exemptions have been made since the localities in question constitute the most easy, the most direct, and the most commonly followed communications with the most distant parts of Germany.

It appears that the President of the Republic of Chili, considering that the date (Dec. 15, 1868) originally fixed for the opening of the Agricultural Exhibition of Santiago did not afford European exhibitors sufficient time for the delivery of their products, has issued a decree postponing the opening of the Exhibition to April 1, 1869.—A man whose long career was entirely devoted to agriculture, M. Charles Leleuvre, member of the superior council of agriculture, and honorary president of the Lille Agricultural Committee, has just died at Paris.—The state of the French crops for the current year and for the current month is summed up by the *Journal d'Agriculture Pratique* as follows: "Wheat generally good; barley and rye of good quality; oats leaving something to be desired; straw small in quantity; vines inducing the best hopes; beetroots and potatoes suffering from drought, like most of the products still in the ground; hops, beautiful; flax, of mediocre quality; hemp, very fine; tobacco, of rather bad quality in the Nord, the Dordogne, and the Landes."

**THE FARMERS' FRIENDS.**—A good deal has been said in North Devon of Mr. Moore-Stevens as a farmers' friend. We hope that our yeoman friends at Tiverton who have been thinking so highly of him in this character will read the report of the cause of Stevens *versus* Copp, tried at the assizes yesterday. These are the facts of the case in brief: A small farmer, with a long family, occupies a leasehold farm in Little Torrington. Mr. Stevens is the owner. The farm is held on a lease for lives, and the lease contains an extraordinary covenant, that in the event of the occupier committing an offence against the game laws he shall forfeit his lease! The defendant, in November last, was, by the Torrington Bench, in the presence of the plaintiff, convicted of an offence against the game laws, or of using a gun to kill game without having a game licence. On this conviction the plaintiff now grounded an action of ejectment for breach of covenant, and a verdict was given for the plaintiff, with leave to the defendant to move the Court above upon all points that could possibly arise on the evidence. The learned judge who tried the case seemed surprised at the stringency of the covenant. The lease is old, and there was no evidence adduced to show that the defendant was aware of the existence of this remarkable covenant. The lease was running when Mr. Stevens bought the land. He is a barrister, and on looking over the lease would soon see the nature of its covenants. We will not remark on this extraordinary case, which is brought before the county by "A Farmers' Friend"; but it appears to us, that Chambers of Agriculture should give the case some consideration, and leaseholders should be admonished to look to their leasehold obligations, lest they find themselves overtaken with law suits which may turn them out of house and home. Farmer Copp is permitted by the verdict to take the case to London, and get the opinion of "the Court above" on all the points of law involved in this intricate case. But how is a tenant-farmer to carry on that kind of warfare? —*The Western Times*.

## CALENDAR OF AGRICULTURE

This is the general harvest month in Britain, as all kinds of grain crops are cut and carried, except in high situations, and in northern latitudes, in which the next month is the general harvest. Wheat is best cut by hand and sickle, and tied into sheaves, and placed in shocks of twelve sheaves in each. Barley and oats may be cut by scythe, and lie for some days in the swathe before being tied into sheaves. When dry, carry the grain quickly, and build the crops into ricks or lodge them in barns. In cases of very level and smooth surfaces of grounds which bear straws of thickly-planted culms of medium height, the crops are very conveniently cut by machinery of great modern ingenuity with very beneficial results. But the great variety of crops and surface grounds over the kingdom may ever confine the use of machinery in cutting grain crops to the favoured cases of level grounds, and upright standing crops of a thick plantation and a medium height.

Cut peas by the hand sickle, and lay the crop in small heaps, which are turned over frequently, and carried, when dry, into ricks on the top of other grains, in order to have a light pressure, or very well over a shed open below, as in a sloping ground. Thatch the ricks quickly, as the culms offer no defence against rains. Thatch must be in readiness, and ropes prepared.

In order to save the expense of thatching the ricks of grain, and to secure the crops from damage by a quick protection from rains, the ricks must stand along the sides of a railway, over which is thrown a roof of zinc or corrugated iron, resting on iron pillars. A light waggon will convey the unthrashed grain along the railway to the end of the barn, where a travelling carrier will convey the sheaves to the scutching machinery on the third floor, from which the grains winnowed from the chaffs fall to the second floor, to be riddled, and thence descends to the ground floor, to be bagged for sale; at the same time the straws on the third floor are cut into short lengths by knives impelled by the steam-power, and carried as litter over the cattle yards by a travelling web that rests on temporary legs, and shifted in any direction. This arrangement would be a mighty convenience in harvest, and also in the manufacture of the crops. The saving of thatching by hand will soon repay the cost of railway and its cover.

Cut grain crops before a dead ripeness has produced a flinty condition of the pickles; the straw will be better fodder, the sample of grain is more delicate, and the flour will be finer. The husks being filled, the grain will soon become hardened after being cut. Barley is thinner in the skin, and suitable for malting.

Finish the cleaning of all green crops, and earth-up potatoes with two deep furrows of the double mould-board plough, drawn by two horses, walking in distant furrows, with a maintree of five feet stretching between them. The cultivation of po-

tatoes requires deep working in every operation; the crop grows below ground, and demands encouragement in that quarter more than plants that are produced on the surface. A week may elapse between the two furrows of earthing up; pull by hand any tall weeds that may afterwards arise.

Spread pulverized lime on clay fallows; cover by harrowing; lay the dung on the land, and spread evenly over the surface, and plough it under, both operations going on together, or as nearly as possible following each other. The cinders of lime in a small size may be spread over the surface of the land, and ploughed under at a time previous to the dung being applied on the finished fallowing of the ground; the bursting of the cinders in the moist under-ground will evolve much heat to penetrate the mass, increase its temperature, and diffuse much benefit from the damp exhalations that are produced. The land may be formed into drills by one furrow of the common plough; the dung spread along the hollows, and covered by splitting the ridglets with one furrow of the plough. This method will cover the dung very completely, and is less costly than ploughing; but a cross-harrowing may be required, to level the drills for the seed furrow. The lime is well applied in the above method, and the farmyard dung is well covered by the drilling of the land.

Give to horses and cows in the yards an ample supply of vetches, which will now be the green food of the farm, and of much nutriment from the pods being seeded. Provide litter in abundance; the manure produced will pay almost any cost.

Fold sheep on bare spots of poor pastures; go on with draining on wet lands; turn over any earthy compost; burn peaty and vegetable substances for ashes, to be used by the drop drill; keep the liquid tank filled with earthy materials to be saturated; carry to the pit refuse matters of every kind.

Keep the draft ewes on good pasture, in order to get the animals fattened; put ewes to the ram for early lambs. The lambs of the year must be favoured with good keep. Some farmers, who have not winter food, nor the means of fattening, sell at this time the lambs and draft ewes.

Sow on well-prepared grounds, in a warm sheltered situation, the seeds of drumhead cabbages, kohl rabi, savoy, and brocoli, for plants to be used next spring. Sow in the end of the month rye and winter vetches for early use, as the first green food of the farm. The seeding must be a large allowance, not under four bushels on an acre, as it never can be too thickly done for feeding crops.

Straws may be reduced into dung during summer as largely and of the same quality as in winter, by providing a constant supply of green food to horses and cattle and milch cows in the

yards, and by cutting the straws into short lengths by the thrashing machinery, to facilitate the saturation of the culms by the urinary fluids, and the covering in the land as dung. Juicy food is required for the secretion of fluids, and in a constant abundance, and the yards must be concreted in the bottoms, to hold the watery elements. Vetches can be arranged to supply the green food of the farm from the beginning of

May to the end of September, and the plant is most fitted for the purposes of food and dung, from the large quantity of juice for the animal, and in the refuse leaves and stems decomposing into an earthy residuum. No plant yet known can be compared with the vetch in these respects; and no man will ever do much in farming who does not provide and apply manures with a constant, a lavish, and an unsparing hand.

## CALENDAR OF GARDENING.

### KITCHEN GARDEN.

**Turnips.**—Sow the Early Stone or Dutch varieties, or Red American—a new introduction. Sow the main crop in drills, with an inch or two of good manure, and a pint of bone-dust to each barrow, three inches directly beneath the intended rows; and these drills ought to be struck in ridges formed by taking some of the earth from the spaces between them. Choose an open plot of land outside the garden; for turnips rarely prosper within it. Hoe and thin the plants as they grow, till at last they stand at about nine inches apart, and above two feet from row to row.

Sow, in the first week of the month, the main crop of next year's Early York cabbage, or Hill's Dwarf; about London and in its latitude, from the 7th to the 10th; a week earlier for colder and more northern localities. Water the drills before sowing, if the weather be dry. The early part of the second week is to be preferred for sowing; but experience must guide in this respect. Some localities require an earlier season—even in July.

Sow winter prickly spinach twice. Choose mellow soil, moderately rich, like that after fresh-dug early potatoes. Nitrate of soda has been proved to be a most fertilising dress, particularly in binding, gritty loams—half-a-pound, scattered over a pole of 30½ square yards, dug in, and the rows a yard apart. Sown as the digging proceeds.

Sow also a sprinkling of French Horn carrot, and Scarlett on shallow soils. Salads and Cress: The Golden or Australian should be added to those in daily use.

**Lettuce:** The Paris and Brockett White Cos. **Radish:** The Wood's Early and French Breakfast, early in the month, and again in the second week or later.

Sow cauliflowers about the 20th, and place the grown plants under glasses or in frames.

The hardier sorts of lettuce, carrots, and onions (White Lisbon) for spring use, and all other vegetables that may have been omitted in July, are to be sown in this month, except the legumes.

Dig up early potatoes. Leave some of the medium-sized tubers of the ash-leaved kidney to lie exposed and green, for seed store. Transplant at various times, according to their size.

Start well-formed plants of cabbage, broccoli, savoy, and Brussels sprouts in the respective varieties, with the exception of savoy, of Early

York, Hill's Dwarf, and Enfield Market, Early White and Winter White, and the Alexandra variety, late and fine, tall and Roseberry Dwarf, with larger sprouts. Incorporate a quantity of good manure with the soil, to which has been added sulphate of ammonia, half-a-pound to the square pole. Coleworts for greens in the same manner, twelve inches apart. Celery for the latest crop about the 20th, in the best varieties of Cole's Crystal White and Williams's Matchless. If the weather be dry, apply water liberally. Never mutilate the plants by cutting the leaves. Earth up former plantings timely and carefully. The spade may be used when the plants are strong, and have already been twice earthed. Propagate sweet herbs by slips and cuttings. Take up garlic, shallots, and onions that are ripe.

Destroy weeds. Leave none to spread the evil by seeding; and at this time a very careful attention is required.

Cut vegetable marrows and cucumbers as they come on, not leaving any to become ripe. Be particular to gather French beans and runners; for if pods ripen, the bearing of eatable pods becomes checked at once. "Gather beans, and have beans," says the old rule.

### FRUIT DEPARTMENT.

**Raspberries.**—Attend first to cut out the brown canes that have borne fruit. Then take away slender, supernumerary, young shoots. Air and sun will thus act upon those six or seven good canes which are left to ripen. Burn the dry canes that are pruned out, and scatter the ashes over the raspberry beds. Some condemn this burning; but we like that the earth receive back, as soon as possible, the inorganic salts thus developed by fire.

"Spur-bearing" trees on espaliers should be regulated very early, by cutting back or snapping the wandering breast or spur-wood, one-third of their length. By snapping, the sap is checked and diverted to the lower buds, while its course is not so fully and suddenly arrested as it is by amputation. The trees are for a time rendered unsightly; but, as all must be cut lower back in a few weeks, that is a mere trifle, if the benefit which has been alluded to be taken as a "set-off."

Apples, pears, and standard trees, or espaliers, are to have spring and summer growths curtailed, excepting the leading shoot, to cause the swelling of the fruitful buds at their base.

## FLOWER GARDEN.

Attend to the routine directions that have been often given; and now repot and dress the auricula plants, and pot off seedlings. At the end of the month, transplant or introduce evergreens, particularly if the weather be moist.

Manure must be collected with constant care. Tall weeds will now be grown on roadsides, ditch-banks, and in the borders of plantations, to be gathered at little cost by children and aged persons, cut into short lengths, and laid in the urine

pit, there to be soaked and rotted by suds and fluids. Vegetables singly are best rotted by fluids; but scourings of ditches and roadsides, with a mixture of earths, are best mixed in a dry compost of earths and lime, in which the vegetables are decomposed, forming a manure of quick efficacy and a long duration. The droppings of the dung of animals may be mixed in this earthy compost, or placed in the urine pit, and mixed with the moist vegetables. In either way a manure is produced from two sources, at little cost, and of certain effect.

## AGRICULTURAL REPORTS.

## GENERAL AGRICULTURAL REPORT FOR JULY.

The weather during the past month has been unprecedentedly hot, and almost of a tropical character. Scarcely any rain has fallen in any part of the country, and general complaints of the long-continued drought continue to reach us from all quarters. The country for the most part presents a scorched and blasted appearance, and great evil is resulting from the prevalent scarcity of water. The brilliant weather has, however, had a most favourable influence on the wheat crop, and has brought it to early and good maturity. Cutting commenced early in the month in the southern districts; by the second or third week the harvest was almost general, and, as we write, the majority of the crop has been well got-in; only the scarcity of labour has retarded the harvest operations in some districts. The dry weather has enabled farmers to secure their crops in excellent condition, and the out-turn is everywhere favourably spoken of—the weights per bushel varying from 62 lbs. to 66 lbs. As a rule the quality is excellent—especially of those samples grown in heavy lands, although some of the parcels from the light and gravelly soils are somewhat shrivelled from excessive heat, having been forced into too early maturity. Taking into account the large extra breadth of wheat sown, and the heavy yield per acre when compared with last year, the total crop will be much in excess of that of 1867.

Barley will apparently turn out much better than was expected, although some of the accounts are very discouraging.

We have seen some good yields of oats; but the crop generally is below an average.

The yield of beans and peas will scarcely be equal to last year.

Rarely have harvest operations commenced at so early a date as at the present time, or been conducted under such favourable auspices. Compared with the general run of seasons, wheat-cutting commenced fully a month earlier than usual, and the crop has been carried with much greater rapidity. The recent calculations as to the probable amount of wheat required to be imported will be considerably thrown out, in consequence of the very early appearance of the new wheats. The stocks of old wheat, however, are very light, and a considerable portion of any surplus that may accrue from this present harvest will easily be taken up in replenishing them.

The sale for wheat has been very inactive, and the trade has been in a most uncertain state, as usual at harvest time, when the out-turn of the crops is much disputed. Millers have operated with extreme caution, and only to supply immediate wants. The general tendency of prices has therefore been downwards. The first few parcels of new wheat exhibited at Mark Lane, however, changed hands at extreme rates; but on the arrival of further samples factors were more moderate in their demands, and accepted considerably less money.

Oats have gradually tended upwards throughout the month, owing to the threatened scarcity of animal food.

Barley, beans, and peas have commanded very full prices.

With regard to the root crops the accounts received are extremely unfavourable. The yield of turnips, mangolds,

beets, &c., threatens to be exceedingly small, and there is every prospect of a great deficiency in the supply of animal food throughout the winter.

The hay crop has been secured throughout the country, even at this early period. The yield has proved to be extremely light, although the quality of the produce is fine, and the crop has generally been carried in excellent condition.

There has been a fair inquiry for most kinds of Spring corn, and the quotations have had a gradual upward movement.

There have been heavy importations of oats, but not sufficient to depress prices in the face of the great failure of the hay and green crops.

The stocks of English barley, oats, beans, and peas are nearly exhausted.

The following shows the value of hay and straw in the metropolitan markets. New meadow hay £3 10s. to £5; old ditto £4 to £5 10s.; new clover £3 10s. to £5 5s.; old ditto £4 to £6; and straw £1 10s. to £1 16s. per load. There is still a moderate quantity of last year's hay in stack.

Our advices show considerable discrepancy in the opinions as to the out-turn of the potato crop, but a most disheartening failure seems to have occurred in many districts. This appears to be owing to the want of moisture, which has retarded growth and induced blight.

The fruit crop is early, and is turning out moderately good, although a little rain would have improved appearances. Apples promise well, and those descriptions of fruit which require great heat have, of course, been greatly benefited by the present season.

In English wool there has been very little doing, and holders have shown considerable anxiety to effect sales. Prices, consequently, have continued to give way. The importations of colonial produce have been on an extensive scale, and, as they are likely to be even heavier in future years, they will have a most depressing influence in the value of home produce. The result of this year's clip is very favourable.

The accounts from the hop plantations have been most encouraging, the heat having induced a rapid growth of bine. The burr looks very healthy, and the amount of lice has not been such as to cause any serious apprehensions. The continued drought, however, has induced an attack of red spider, which some smart showers would have remedied. Under these circumstances, the market has been extremely inactive, and holders have been anxious sellers, even at a considerable reduction. The first pocket of new Kent hops has been sold in the Borough at £8 8s. per cwt.

In Scotland, the crops generally are very forward, the cutting of wheat having been commenced in some districts. The yield will be greatly in excess of last season. Barley and oats are not looking very well, and potatoes, as in England, are a partial failure.

In Ireland, the potato crop does not seem to have suffered to the same extent as in the sister island, but the out-turn will be decidedly below the average. Wheat is favourably spoken of, but the harvest operations are not so forward as on this side. The markets generally have been inactive, and the quotations have followed the course of prices in the English markets.

## REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

The present season has been a most unfortunate one for the breeders of live stock. The great heat has caused a heavy deficiency in the supply of water, while the failure of grass and of the green crops has almost prevented animals from being kept in condition at all. The scorched state of the country has caused great difficulty to breeders and graziers, the result of which has been that the stock has been forced to market in a premature and half-fat condition. The Norfolk season closed well, and the first arrivals of beasts from Lincolnshire and Cambridgeshire to the metropolitan market were in fair average condition, but the long-continued drought soon commenced to tell on the quality of the stock, which is now being sent to market before it is nearly ready for the butcher. These beasts, being inferior, have changed hands at a further reduction in value, but the few really good beasts on sale have commanded late rates. From Scotland the arrivals have been small, and the quality has not been so good as usual. Really prime Scots and crosses have changed hands at 4s. 8d. to 5s. per 8lbs., but the general prices realised have been below that figure. The supplies of English beasts have been in excess of the same period last year, while the number of foreign animals exhibited has fallen off.

Very large numbers of sheep have been on sale, having been forced to market in consequence of the want of pasture and water. The quality of most breeds has been inferior, and all but choice animals, which have been very scarce, have changed hands on lower terms. Prime Downs and half-breeds have realised 4s. 8d. to 5s. per 8 lbs.—the latter being an extreme quotation.

Full average supplies of lambs, of which the production this year appears to have been heavy, have come to hand. The demand has been fairly active, and the quotations have been supported, say 5s. to 6s. per 8 lbs.

Large quantities of calves have been on sale, the importations having been unusually heavy. The animals have been of fair quality, but no change of importance has taken place in the quotations, which have ranged from 3s. 6d. to 5s. per 8 lbs.

Pigs have been in fair demand on about the terms lately current, the top figure being from 4s. 2d. to 4s. 4d. per 8 lbs.

The large quantities of stock now being forced to market in consequence of the protracted drought, will have a serious effect upon our future supply of food, and serious apprehensions are beginning to be expressed on the subject. The hay crop has turned out a failure, and the turnips, mangolds, &c., show very little prospects of any remunerative return. The supply of animal food for the winter is, therefore, likely to be only moderate.

The total supplies of stock exhibited in the Metropolitan Cattle Market have been as follows:—

	Head.
Beasts ... ..	24,312
Sheep and Lambs ... ..	195,250
Calves ... ..	3,938
Pigs ... ..	1,360

### COMPARISON OF SUPPLIES.

	Beasts.	Cows.	Sheep.	Calves.	Pigs.
July. ....	18,590	280	136,480	3,117	1,755
1866 ..... 21,710		120	158,090	3,778	2,420
1865 ..... 23,010		580	140,980	5,757	2,480
1864 ..... 27,394		560	147,890	4,658	3,140
1863 ..... 24,070		525	169,870	3,822	2,682
1862 ..... 22,392		508	151,060	2,339	2,637
1861 ..... 19,740		560	156,140	3,532	3,240
1860 ..... 19,870		490	153,600	3,133	2,428
1859 ..... 19,600		476	166,632	3,609	2,430
1858 ..... 20,408		547	154,922	4,262	3,290
1867 ..... 19,558		530	142,280	3,830	2,395

The imports of foreign stock into London have been as under:—

	Head.
Beasts ... ..	6,037
Sheep and Lambs ... ..	24,905
Calves ... ..	2,282
Pigs ... ..	2,316

Total ... .. 35,540

The comparison of the arrivals of English, Scotch, and Irish beasts of various breeds is as follows:—

	July. 1866.	July. 1867.	July. 1868.
From—			
Northern Counties.....	2,800	2,860	6,600
Norfolk, Suffolk, &c. ..	2,700	2,500	1,800
Other parts of England.	2,400	3,370	3,700
Scotland .....	149	324	96
Ireland .....	193	80	170

### COMPARISON OF PRICES.

	July, 1867.			July, 1868.		
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Beef from .....	3 4	5 4	...	3 0	5 0	...
Mutton .....	3 4	5 2	...	3 0	5 0	...
Lamb .....	5 6	6 8	...	5 0	6 0	...
Veal .....	4 0	5 6	...	3 6	5 0	...
Pork .....	3 4	4 6	...	3 2	4 4	...

Owing to the intensely hot weather, the supplies of meat on sale at Newgate and Leadenhall Markets have been only moderate, and the trade has been subject to much fluctuation. The general course of prices, however, have been as under. Very little foreign meat has been on sale:—Beef, from 3s. to 4s. 4d.; mutton, 3s. to 4s. 6d.; veal, 3s. 10d. to 4s. 8d.; lamb, 4s. 6d. to 5s. 4d.; pork, 3s. to 4s. 6d. per 8lbs. by the carcase.

## EAST GLOUCESTERSHIRE.

The well-known and generally accepted proverb, "A dry summer never brought a famine in England," will afford great consolation in this trying year. Last year there was abundance of food for the inferior animals, but a scarcity for man. This year the reverse appears likely to be the fact; for although wheats on light soils would have been greatly improved by more moisture, the heavy-land crops are most promising. If we remember rightly, the summer of 1844 was much drier than the present, and yet the crop of wheat was good. So far, then, as "breadstuffs" are concerned, we think there is nothing to fear. Wheat cutting has commenced on some Talavera and other early kinds, and the "whitening for harvest" is rapidly going on everywhere. Of barley we cannot speak so hopefully; for although on highly cultivated lands the early planted crops are good, yet all the accounts we hear of the later sown crops are decidedly bad, and it seems doubtful if the long drought has not entirely spoiled a large breadth both of barley and oats, together with the clover and grass seeds sown therewith. The beautiful showers which came on Sunday last may refresh the young clovers, &c., but can hardly be of much service to stunted and sun-burnt cereals. Beans are very short of straw, and badly podded; but we have seen them worse; the winter variety are best. The earlier kinds of peas were tolerably good, and have already been harvested; the later crops variable, and some worthless. Vetches do not promise well for seed, although the crop for fodder was good. Hay is all secured in first-rate order; the ricks are small of meadow hay, but clovers and artificial grasses were quite an average crop, and as a large quantity of old hay remains on hand the prospect for the winter is not so bad. Potatoes are sadly injured by drought, and very small; the little ones will have to be used for human food, and cooked in Irish fashion—"with their jackets on;" but what will become of the pigs is difficult to say. Happily there is no disease. The early-planted mangolds are tolerably good; late ones bad. Swedes are scarce, and generally looking very sadly; they cannot be a crop. Turnips we have none, but the land is well prepared, and should we be blessed with a soaking rain within the next three or four weeks we should not despair of a crop of the quick-growing varieties. The grass lands are frightfully burned up, and water is very short, which has driven a large quantity of fat and half-fat stock into market; consequently trade has been dull, and prices muted lower than for years past. The corn markets, too, are from 16s. to 18s. per qr. lower from the highest point. The land is still exceedingly hard, and six strong horses are not unfrequently seen with difficulty moving a plough. The ploughmen, too, get a good shaking. Flies and other insects seem unusually abundant this season, but swallows and martins remarkably scarce. We are sorry not to hear their usual cheerful twitter on our houses, and must strongly deprecate

the practice of those uncomfortably clean housewives who insist upon having "the dirty things' nests" removed from the overhanging eaves. We would give every encouragement to these and other harmless useful birds and friends of man, wisely sent by a beneficent Creator as a wholesome check to the mischievous insect tribe.—July 15.

#### MID-KENT.

"O dear! do you think there is any hopes of rain?" is the remark usually made when one person meets another. And some gloomy reply follows, with details of the suffering inflicted on certain things, and the still more serious aspect of the future. Yet now and then we meet with some who look more cheerfully at things; and their recollection of 1818 and 1826 recalls periods not by any means so bad as some would make them appear just now, although those seasons resembled the present one very much. But it is not my purpose to speculate further into the future than is warranted by the condition of things at present; and in reporting how they stand now, I may say our pastures, which were once green, have passed through the brown stage, and are now almost bleached white, with only a little vestige of a green tint under trees or by the sides of ditches, that it is marvellous how the sheep and cattle eke out a living. The sheep, I may observe, are doing well where it is not too bare, but in most cases some additional food has to be given to the cattle. We being fortunate in having a large proportion of last year's hay can get on pretty well, but those who have to depend on the crop of the present year must be badly off indeed, and their number is legion; and small as the quantity was, it does not appear likely to be supplemented by either the straw or Lent corn or green crops, for even our lucerne seems to quail with the continued heat and drought; clover being still worse; so that green food for present use is out of the question. Thus all our hopes are centred in the hope, which on the whole look well, and promise to be one of the most abundant crops on record, and much earlier than was ever known before; and if all goes on well, we hope this crop will make amends for many of the shortcomings of the year. Fruit, though also earlier than usual, is not so abundant as was expected, in fact in many places it is only indifferent; nevertheless it is a fair paying crop, and its gathering has given employment to much labour that would otherwise have been thrown out of employ before harvest. Now when the latter is going on it is needless to say there is plenty to do for every one, and the hurrying condition of the weather is such that every one having grain ripe is anxious to have it cut and secured as quickly as possible; and at the time I write much has been so secured, wheat especially. Oats and barley will, however, be short in straw, but the sample will be good, and we hope the yield will be more than its appearance at one time looked likely to be. Potatoes, however, will be small, and are now too far advanced towards maturity for rain to do them anything but harm. Mangold in some places looks not amiss, and may yet become a crop; and we have seen a piece or two of swedes that might yet do well if rain came at once, but they are exceptions to the general rule. Of white turnips I may say there are none; I certainly have not seen a single piece that gave the slightest claim to the term "crop." The season, however, is not too far advanced yet for a moderate crop of these, if the future be showery and growing. But those who would be our weather prophets seem unable to tell us what this future is to be, and appearances for rain have been plentiful enough, but none follows, so that we are afraid the present summer will end as it has begun, a Continental or Australian one. And as we have not had quite one inch of rainfall since 29th May, it is easy to conceive the scorched-up condition of vegetation, and what is equally bad, the deficiency of water for domestic purposes, which most likely has not reached its worse yet.

#### AGRICULTURAL INTELLIGENCE, FAIRS, &c.

**BOSTON SHEEP MARKET.**—About 500 fat sheep; but a slow trade was done, at from 5d. to 6d. per lb. Lambs, which were somewhat plentiful, were extremely difficult to quit even at reduced rates.

**BROMYARD FAIR.**—There was a good supply of cow

and calves, which, owing to the scarcity of keep, met with a very dull sale. There was also a large supply of sheep, and these also from the same cause went at very low prices. Pigs were likewise very low in price: few horses on offer, with but little business doing. Altogether trade was very dull.

**BURGH FORTNIGHTLY FAT STOCK MARKET.**—There was a good show, prices being a shade lower than last market, beef ranging from 7s. 6d. to 8s. per stone, and mutton 5½d. to 5½d. per lb.

**CAWDOR TRYST.**—Prices showed a downward tendency; but, in consequence of an anticipated favourable change in the weather, holders of stock generally declined extremely low prices, notwithstanding the scarcity of pasture, and a good many lots consequently remained unsold. Mr. Alexander Frazer sold a lot of two-year-old cross stots at £12 each; Mr. Lawrence bought a lot of two-year-old stots at £13 each; Mr. Duncan Robertson sold a cow for £15; Mr. Macpherson sold two two-year-old queys for £28 10s.; Mr. Robb sold a lot of two-year-old cross stots at £14 each; Mr. Rose sold a lot of two-year-old stots at £16 each; Mr. Maclellan sold a polled quey at £11; Mr. Clark bought a lot of one-year-old Highland cattle at £14 10s. each; Mr. Macdonald bought a lot of two-year-old stots at £13, another lot at £15, and another lot at £18 each; Mr. A. Macdonald bought a fat heifer for £13. In sheep, the following are among the transactions: Mr. Maclellan bought a lot of sheep (dimonts) at £24 5s. per clad score; Mr. Arnott sold a lot of sheep at 22s. each; Mr. Cameron bought a lot of half-bred hogs at 25s. each.

**GRANTHAM FAT STOCK MARKET.**—A good show of both sheep and beasts. Beef 7s. 9d. to 8s. per stone, mutton 5d. to 6d. per lb. Slow trade.

**HORSHAM LAMB FAIR.**—There was not so many sheep penned by about a thousand as there were last year, and owing to the very limited amount of feed in the country, trade was remarkably dull. This year there was between 11,000 and 12,000 sheep; a great many of them were unsold, and for ewes there appeared to be scarcely any inquiry. There were some very fair lambs. Mr. Bird sold about 80 at 28s. per head. Mr. King made 30s. each of a lot. The Messrs. Emery, however, had the crack lot of the fair, exhibiting 300 wether lambs, which took the highest price of the fair, 32s. each.

**KIRTON LINDSEY FAIR.**—A very meagre show of beasts, in which the trade ruled very sluggish; but fair prices were made, considering the long dry season. Hardly any sheep, which were generally neglected. A moderate supply of horses, and a brisk business passing: the prices made ranging as high as £40.

**LEWES FAIR.**—The trade ruled very dull, large numbers being sent home unsold. The highest prices we heard of were 36s. for some wethers belonging to Mr. Kirby, and the highest for lambs 22s., belonging to Mr. Deadman. The number of sheep and lambs was between 14,000 and 15,000, an increase of about 1,000 over last year. Business could only be done at a considerable reduction on the price of last year, in consequence of the scarcity of sheep feed.

**PALDY FAIR.**—Business was stiff, and the prices ruling may be quoted as a shade lower than last year. For black-faced ewes from 9s. to 18s. was got; for wethers from 18s. to 30s. At a late hour a good number of sheep remained unsold. The cattle market was well attended. Unlike the previous day, rain fell heavily at intervals during the day, which seemed to do the farmers' hearts good. The effects on the crops was wonderful. Notwithstanding this, business proceeded very stiffly, and the prices had, if anything, an upward tendency. The figures were 10s. 6d. to 11s. per Dutch stone. The top lot in the market was sold at £20 each.

**READING FAIR.**—Although graziers and dealers offered to dispose of stock cattle at reduced value, few sales were effected. The continued drought has parched the grass land, and green cattle food is scarce, and farmers are unable to sustain stock without the assistance of hay. This year's hay crop being short and the price considerably advanced, stock keepers are constrained to thin out cattle herds, and the country markets are glutted with half-fatted beasts, &c. Dairying cows were in great demand, and large-farmed, well-bred, full milk cows sold at £20 to £24 a head. There was a large show of superior class horses, and animals suitable for heavy draught purposes obtained a ready sale.

**SANQUHAR LAMB FAIR.**—On this occasion the



business done was far short of any previous market. This was, however, looked for, because of the long-continued drought, which is completely baffling rears of stock, and has, moreover, upset the intentions of dealers as well as graziers. The attendance of farmers and dealers was pretty considerable; but, while the former were anxious to sell, the latter were seemingly perfectly indifferent whether they purchased anything or not. Generally, black-faced ewes would be back from 3s. 6d. to 5s.; black-faced ewe lambs, from 3s. to 4s.; black-faced wether lambs, from 1s. to 1s. 6d.; Cheviot lambs, from 2s. to 3s.; half-bred lambs, from 4s. to 7s.; and crosses, from 3s. to 5s. We can only give a general range of prices: Black-faced ewes sold from 11s. to 14s. 6d. The last-mentioned price was obtained for a lot which fetched 20s. last year, and the year before 33s. Black-faced ewe lambs ranged from 12s. 6d. to 16s.; and wether lambs, from 3s. to 8s., and 9s.; Cheviot wether lambs, from 7s. 6d. to 15s.; Cheviot mid ewe lambs, 11s. 6d., and half-bred lambs, from 14s. upwards.

**SHERBORNE FAIR.**—A small quantity of poor stock, and a few pens of sheep; the scarcity of keep and the early harvest-feld keeping back both sellers and buyers. Business was something worse than a drag. A fine pen of good bred down lambs moved off at 14s. a-head.

**ST. AUSTELL MONTHLY MARKET.**—The show of fat cattle was exceedingly good: average price from 65s. to 67s. per cwt. Cows and calves a very small show and dull sale. Mutton, very fine, 6½d. to 7d. per lb.

**ST. BOSWELL'S FAIR.**—For quality of lambs this fair may be considered the principal fair on the Borders, the lambs in most instances being reared on the crack farms of Tweedside and Tiviotdale, and are in most instances three-parts bred. The show this year, owing to the dull state of the other lamb markets, was expected to be a large one; but these anticipations were not realized, the number of head being several thousands less than on the previous year. Notwithstanding the small supply, the numbers appeared quite adequate to the demand, and at the close a number of the best lots, besides inferior ones, left the market unsold. The top price in the market was got by Mr. Fairbairn, who sold his lot at 26s., being 1s. 3d. less than the price he got last year. The fall in the prices generally would run from 2s. to 7s. per head. There was a large number of horses. The attendance of dealers was also large. There was a want of good hunting animals; but there were several good draught animals. For good animals there was a fair demand, but secondary kinds were slow to sell.

**IRISH FAIRS.**—**COOTHILL:** Beeves brought £21 downwards, springers and milch cows £17 down, bullocks and storks £8 down, yearlings £2 to £3; beef 6½d. to 8½lb.; fat sheep 48s. down, lambs 20s. to 25s., wethers and mediums 32s. to 39s. Pigs scarce; bonhams 12s. to 18s. each, slips 55s. to 75s. each, porkers 57s. to 62s. per cwt. The horse fair was small; farmers' nags £8 to £12, cavalry horses £20 to £32 each.—**BALLYRAT:** The prices for cattle rather advanced; calves £2 to £3 5s., bullocks and storks £5 to £8 5s., springers £17 down; beef 6½d. to 8½d. per lb.; fat sheep 49s. down, wethers and mediums 40s. down; lambs 29s. down; mutton 8d. to 8½d. per lb. Pigs scarce; suckers 12s. to 18s., hoggets and mediums 55s. to 70s., fat 58s. to 62s. per cwt. Of horses there was a fair supply; those fit for the cavalry and high-class animals exchanged owners at from £20 to £40.—**CAMLUGH:** Two and three year old bullocks of anything like promise brought from £7 to £12 10s. per head; yearlings £4 to £6 10s.; two year old heifers averaged £8 per head; yearlings £4 to £5; calves £2 to £3 each; strippers £7 10s. to £10 each. The show of sheep was an average, aged wethers scarce, and mutton rated from 5d. to 6½d. per lb. Lambs were freely purchased at from 18s. to 24s. each. Some superior ones went as high as 26s. to 28s. a-piece. Milch cows and springers were in fair supply. The best prices for springers varied from £14 to £10 10s.; secondary and inferior from £8 to £12 16s. per head; milch cows from £9 10s. to £15 per head; store pigs from 36s. to 48s. each; suckers and yearlings from 15s. to 20s. each. No really superior horses. Spring colts of active stepping action fetched from £20 to £30 each, draught horses and long tails to £18, farmers' nags £10 to £16.—**MOUNTMELICK:** Beef fit for the butchers fetched 56s. per cwt. Springers were few, and went from £10 to £16 each. Year old bullocks could be had from £10 to £13 10s., two years old ditto from £7 5s. to

£10, yearlings from £4 to £7, weanlings from £2 to £3 each. Heifers rated at about the same figures. The sheep fair was moderately supplied, and to effect sales the late downward tendency had to be submitted to, especially in lambs. Mutton ranged from 5½d. to 6d. for prime, second-rate 5d. to 5½d. per lb. Lambs from 15s. to 20s., hoggets 28s. to 36s. each. The pig fair was limited to stores and bonnies. Stores brought 40s. to 60s., slips 30s. to 40s., bonnies 18s. to 25s. each.

#### PRIZES AT OVERTON SHEEP AND LAMB FAIR.

The competition was good in all the prize classes, and the premiums were distributed as follow: A cup, value £10 10s., given by the Right Hon. Lord Northbrook, for the best pen of 100 wether lambs, Mr. John Barton, Basingstoke; second, a cup, value £5 5s., given by Mr. George Schlater-Booth, M.P., Mr. W. Lunn, Whitechurch. A cup, value £10 10s., given by Mr. W. W. B. Beach, M.P., for the best pen of wether lambs, Mr. W. Warwick, Worthy. A cup, value £10 10s., given by Mr. Melville Portal, for the best pen of ewes, Mr. John Barton; second, a cup, value £5 5s., given by His Grace the Duke of Wellington, Mr. Schwann, Houghton. A sweepstake of £1 each, with £5 5s. added by Sir Henry St. John Mildmay, for the best ram of any age or breed, Mr. Olding, Ratfin Farm; second, a cup, value £5 5s., given by the Right Hon. the Earl of Carnarvon, Mr. Moore, Littlecot. A cup, value £5 5s., given by the Right Hon. the Lord Viscount Eversley, for the best pen of ram lambs of any breed, Mr. Morrison, Fonthill.

**WATERCOMBE FLOCK SALES.**—The annual ram letting on July 2nd attracted a large company of breeders. Mr. T. Ensor conducted the letting, and nearly 150 lots were rapidly disposed of at unprecedented prices. The highest figure reached was 41 guineas. This was a four-tooth ram, secured by Mr. Olding, of Ratfin Farm, Amesbury. Last year Mr. Olding hired the same ram for £20. A Hampshire breeder (Mr. Hogg, of Cadlands) took a very fine two-tooth sheep for 23½ guineas. Mr. Dowden, of Roke, secured a six-tooth sheep for 18½ guineas. For 20 guineas Mr. S. Symes, of Doles Ash, obtained a four-tooth ram. Mr. R. Genge, of Waterson, obtained four at the prices respectively of 14, 21, 11, and 12 guineas. Mr. Hogg, in addition to the one before-mentioned, took a ram for 13 guineas; Mr. J. Symonds, of Monckton, gave 10½, 16½, 17, and 18½ guineas for rams; Mr. Vincent of Clifton, Yeovil, 10½, 12, and 22 guineas; Mr. Tink, of Wimborne, 11½ guineas; Mr. W. Besant, of Roger's Hill, 10½ and 13 guineas; Mr. Dowden, of Roke, besides the ram previously mentioned, took another at 14½ guineas; Mr. T. Homer, of Emsworth, 18 and 16½ guineas; Mr. Porter, of Wimborne, 11½ guineas; Mr. Buby, Godmanstone, 15 and 18 guineas; Mr. J. Homer, Martinstown, 10½ guineas; Mr. J. Saunders, Muston, 10½ guineas; Mr. W. Chick, Owermoigne, 12 guineas; Mr. Gale, Nottingham, 15 guineas; Mr. Udall, Chaldon, 10½ guineas; Mr. F. Pope, Kingston Lacey, 13½ guineas; Mr. Bartlett, Burweston, 12 and 12½ guineas; Mr. Paull, Isle of Wight, 12½ guineas; Mr. Hodge, Taunton, 12½ and 15 guineas; Mr. Rawlence, Bulbridge, 12 guineas; Mr. Young Bloxworth, 14 guineas; Mr. H. Pope, Preston, 14 guineas. The others were let at prices varying from six to ten guineas. The proceeds of the letting amounted to nearly £1,189, and the rams were taken by forty-six breeders.

**MR. HUMPHREY'S SALE OF HAMPSHIRE SHEEP.**—This sale took place at Oak Ash, when the ram lambs were first disposed of at an average exceeding £16 each. Mr. Rawlence secured one at 60gs., Mr. W. King one at 57gs., Mr. C. Child 56gs., Mr. Ferris 42gs., Mr. Waters 41gs., Mr. Moore 31gs., Mr. Bennett 29gs., Mr. Saunders, of Watercombe, 29gs., and Messrs. Tanner and Galpin, one each at 26gs. The sheep were next disposed of at prices ranging up to 26gs., Mr. Galpin being the last bidder for one at that figure. The yearling ewes were sold at various prices up to 22gs. for the pen of five.

**MESSRS. CORDEROY'S CHEESE CIRCULAR,** (Thursday last.)—The cheese trade here continues to be much affected by the extreme heat of the weather. It is almost impossible to keep the soundest cheese in good condition even in the coolest and best ventilated warehouses, and our customers naturally shrink from adding more than they can help even to the smallest stocks. When the temperature becomes

cooler we look for a fair demand for really prime new cheese (in good condition) at moderate prices. There is nothing in the aspect of our market, or in advices from abroad regarding the make of foreign cheese, to warrant the expectation of high rates, and we trust our friends will act with due caution. Scotch cheese of choice quality (in prime order) will command fair prices. American cheese are only in moderate demand, at 54s. to 60s. for fine to extra; some very prime useful cheese have been sold at 41s. to 52s. The arrivals since our last are 22,511 boxes.

READING CHEESE FAIR was inadequately supplied, and new cheese comes to hand in bad condition, and the prices vary from 50s. to 56s. and 64s. per cwt.

GLASGOW, (Wednesday last.)—The supply of cheese was liberal, 1,900 having been laid down. The warm season being unfavourable for holding, buyers operate cautiously. About 27 tons sold. Old Cheddars 51s. to 58s., new ditto 44s. to 52s.; old Dunlops 48s. to 55s., new ditto 42s. to 46s.; new Skim-milk 19s. to 20s.

CORK BUTTER EXCHANGE, (Friday last.)—Ordinary: first quality 111s. to 108s., second quality 107s. to 104s., third quality 98s. to 95s., fourth quality 93s. to 90s., fifth quality 83s. to 80s., sixth quality 66s. to 63s. per cwt. Mild-cured: first quality 117s. to 114s., second quality 110s. to 107s., third quality 101s. to 98s. per cwt. Repacked and dairies, 41; 3rds, 4ths, 5ths, and 6ths of kegs 4s. per cwt. less. Currency—ordinary butter 10s. per cwt. less, mild-cured 10s. ditto, sponged butter 2s. ditto.

#### ENGLISH WOOL MARKET.

CITY, MONDAY, July 27.—There is a better feeling in the market for English Wool, holders having shown less disposition to force sales, and prices are rather firmer; there is, however, very little doing for export.

CURRENT PRICES OF ENGLISH WOOL.		s.	d.	s.	d.
FLEECES—Southdown hoggets.....	per lb.	1	3	1	4
Half-bred ditto .....	"	1	4	1	5
Kent fleeces.....	"	1	3	1	4
Southdown ewes and wethers ..	"	1	2	1	3
Leicester ditto .....	"	1	3	1	3
Sorts—Combing .....	"	1	0	1	6
Clothing .....	"	1	2	1	6

BRADFORD WOOL MARKET, (Thursday last.)—The general tone of the market this morning is quiet, although since our last report some rather considerable purchases have been made. It is now, however, near the end of the month—a time when people don't care to enter into many new engagements. Then the quietness in the cotton market and the sluggish demand for German yarns, taken together with the large stock of wool in the market, prevent anything like a general activity. The transactions that have taken place have generally been by the large consumers, who share with the staplers a growing confidence in the value of wool. The extreme firmness of most of the principal holders, leading them sometimes to ask a fraction more money, is itself a proof that they are looking forward to enhanced prices when the market shall have become a little relieved of the heavy stocks now pressing upon it.—*Bradford Observer*.

BRAMPTON SECOND WOOL FAIR.—The Cheviot wool ranged from 1s. 1d. to 1s. 3½d. per lb., a slight increase upon that of last year. Upwards of 6,000 fleeces were disposed of before night.

DONCASTER WOOL MARKET, (Saturday last.)—We had not more than 100 sheets brought to market this morning, the August wool fair being now near at hand. In consequence of that fair, on the 5th August, there will be no wool market next Saturday. A good demand was experienced for all that was shown to-day, and the whole was well sold up at the close of the market, prices remaining quite firm—viz., all-hogg 42s. to 44s., two-thirds do 38s. 6d. to 40s. 6d.; half-hogg 33s. 6d. to 39s. 6d., all-ewe 32s. to 35s. 6d.

GLASGOW WOOL MARKET, (Saturday last.)—A large business has not been done in this market during the week, but a better feeling prevails as compared with the week previous. The announcement of the public sales has in some measure restricted operations, but rates remain extremely firm. Laid Highland is in fair demand, and laid Cheviots meet with a ready sale. White Cheviot and half-bred hoggs are in request, whilst white Highland is all but neglected.—*F. H. M'Leod*.

JEDBURGH WOOL FAIR.—There was a pretty good attendance of buyers and sellers. Cheviot wool brought from 32s. 6d. to 35s., half-bred from 34s. 6d. to 36s. 6d. Messrs. J. Dun and Co. bought blackfaced from 15s. 6d. to 16s.; Mr. Scott (Whitton) sold his clip of half-breds at 36s. 6d.; Mr. Hedley (Stobbs) sold his clip of Cheviot at 35s.; Mr. Stevenson (Keeldar) got for his clip of Cheviot 35s.; Mr. Swan (Bush) got for his half-bred and Cheviot 36s.; Mr. Turnbull (Midburn) got for half-bred 34s. 6d., with a 6d. referred up; Mr. Telfer (Wolfehopelee) got for his Cheviot clip 34s.; Mr. Simpson (Boughtrigs) sold his clip of Cheviots at 35s.; the Gowanburn clip was sold at 35s.; Mr. Logan (Carrout) sold his clip of white Cheviot at 33s. 6d.; Mr. Smith (Templehall) got for half-bred and Cheviot 34s. 6d.; Mr. Snaith (Blakhope) sold his clip of hoggs' at 35s. 3d.; the Otterstonelee clip brought 32s. 6d.; Mr. Mein (Broomhills) sold half-bred at 36s.

LEEDS (ENGLISH AND FOREIGN) WOOL MARKETS, (Friday last.)—The bulk of the English wool is now in the hands of the manufacturers and staplers, and there does not seem much probability of change in price for some time, especially as orders are not being given out freely for either yarn or pieces. There is a fair consumption of colonial and other wool, but scarcely equal to the supply. A large sale at Antwerp last week of South American wool, which showed a decline of from 10 to 15 per cent. on prices obtained there last May.

LEICESTER WOOL AND WORSTED TRADE.—Prices of both wool and yarn remain the same, with dull demand. Leicestershire wool rallied slightly last week—say ¼d. per lb.—some purchases having been made by Yorkshire buyers.

LEWES WOOL FAIR.—At the dinner, which took place at the White Hart hotel, the chair was taken by G. Darby, Esq., of Marklye. On the removal of the cloth, the chairman declared the fair opened. Mr. Filder announced that he had sold his wool, 800 fleeces, to Mr. Alfred Adams, at 15½d. Mr. Goring offered his wool, 400 fleeces, to Mr. Breach at 16½d. Mr. Breach: "I will give you two guineas a tod." Mr. Goring: "How much a lb. is that?"—"15½d." The chairman, amidst great amusement, proposed that they should toss up whether Mr. Breach should give 16½d. or 16d. It was agreed; the chairman tossed the coin, and Mr. Breach, guessing wrong, had to give 16½d. (roars of laughter). Mr. Paxton (to Mr. Adams): "530 ewes and 308 tegs at 15½d." Mr. Adams: "I'll give 15d."—"I'll take it" (cheers). Mr. John Verrall offered 1,520 fleeces at 16½d. Mr. Breach: "I'll give 16d." (accepted). Mr. Ellis, of Beddingham, sold 2,110 fleeces to Mr. Breach at 16d. Mr. Cane, in returning thanks, offered his wool to Mr. Breach at 16d. (accepted). Mr. Farncombe offered 970 ewes' and 340 tegs' to Mr. Adams at 15½d. Mr. Adams offered 15½d. (accepted). Mr. Cane offered Mr. Leigh's wool, 600 ewes and 200 tegs, to Mr. Breach at 15½d. (accepted). Mr. Tickner sold his wool to Mr. Breach at 15½d. Mr. Evans sold 500 ewes and 200 tegs to Mr. Breach at 16d. Mr. Lovegrove, steward to R. Wilson, Esq., sold 100 fleeces to Mr. Breach at 16d. Mr. P. Gorrings sold 332 ewes, 256 tegs, and three rams, to Mr. Legg at 15½d.

SANQUHAR WOOL FAIR.—There was a large attendance and a considerable amount of business was done. The prices for blackfaced wool ranged from 12s. 6d. to 14s., and Cheviot wool from 26s. to 30s., 28s. being the average.

ST. BOSWELL'S WOOL FAIR.—There was an excellent feeling in the wool market, and prices were considered by sellers 6d. to 1s. up from Dunse. There was no doubt but the tone of the wool market was greatly improved, and a large number of clips sold. Among the lots sold were the following: Mr. Fleming (Craigsford-mains) sold his clip of all-hogg at 40s., and all-ewe at 33s.; Mr. F. Tait (Lindean) sold his clip of half-ewe and half-hogg at 36s. 3d.; Mr. Tait (Venchen) sold his clip of more hogg than ewe at 37s.; Mr. Short (Humbledon) sold his clip of half-and-half at 36s. 3d.; Mr. Waller (Ammerside-law) sold his clip of half-and-half at 36s. 6d.

THE NORTHUMBERLAND AGRICULTURAL SOCIETY.—MEETING AT CORNHILL.—The annual show this year was, in respect of the number of entries of all kinds of stock and implements, the best the society has ever held. The entries were nearly two hundred more than at any previous show, and the number of visitors was also

very large. Amongst the shorthorns, some of the aged bulls would have cut a very good figure even at Leicester, and the same remark may be made as to at least half a dozen of the cows. The young bulls were equally good in quality, though few in numbers. The cows, indeed, surprised many, who never anticipated finding so good a show in Northumberland. Still Mr. Booth sent nothing, having preferred to take Grantham on his way from Leicester to Wetherby. The Leicesters were particularly good, and it is hardly necessary to say that amongst the Cheviots were to be found some of the finest animals in Northumberland. The black-faced sheep were most characteristic specimens, the heads especially being perfect pictures. The show of horses was very good, in respect both of quality and number. The five-year-old hunters, as a whole, were an exceedingly good lot, and with no less than 27 entries. The winner was the celebrated bay mare Lady Derwent. The pigs were few in numbers, but in every respect first-class animals. The number of implements was very large. With the exception of one, this department contained no novelty of importance. The exception was Norton's now famous pump. The Duke of Northumberland presided at the dinner.

**WAYSIDE GRAZING.**—At the quarterly meeting of way-wardens for the Wingham division, held at Eastry, Kent, the subject of wayside grazing came on for discussion. It seems that the practice is pursued to a considerable extent throughout the district, much to the inconvenience of the farmers, whose occupations in a great measure are unprotected by hedge or fence, which renders the nuisance more irksome. Measures have, from time to time, been taken to reduce the number of cattle thus fed, and an order issued by the Board, that all animals found grazing upon the highways, not in charge of a person, and tethered, would be impounded. At the meeting on Thursday, however, the chairman announced that, by a recent decision in the Court of Queen's Bench, all highway boards had the power to prohibit the grazing of cattle along the roads, under any circumstances, the only exception being where there existed a right to common or waste land. He read the case, which was an appeal against a conviction by the Hertfordshire justices, who held that the offence of ranging had been committed, even though the cattle were tethered, as they were not upon the road for the purpose of transit from one place to another. The chairman, in announcing that the judges upheld the conviction, said the settlement of the question was of great importance to farmers throughout the country, and he suggested that printed notices should be circulated throughout their extensive district, warning persons against continuing the practice—this was ordered to be done.

## POTATO MARKETS.

### BOROUGH AND SPITALFIELDS.

**LONDON, MONDAY, July 27.**—These markets are fairly supplied with potatoes. On the whole, the trade has ruled steady, at about late rates. The import into London last week consisted of 72 packages, 473 cases, 40 baskets Boulogne; 2881 baskets Rotterdam; 864 boxes, 99 tons Barleux; 19 barrels, 6 bales, 179 sacks, 36 casks, 250 bags Dunkirk; 220 boxes 8 tons Cherbourg, and 77 tons St. Malo.

English Shaws	...	7s. 0d. to 8s. per cwt.
Regents...	...	6s. 0d. to 9s. "
Jersey	...	6s. 0d. to 8s. "
French	...	6s. 0d. to 7s. "

**COUNTRY POTATO MARKETS.**—**BARNSELY** (Saturday last): Kidneys 18s. to 20s. per load, or 5lbs. for 6d., round ditto 15s. to 16s. per load.—**DONCASTER** (Saturday last): Not a large supply of potatoes at market, and these were selling at from 1s. to 2s. per hamper above the rates of last week. Kidneys 8s. to 8s. 6d. per five-peck hamper, round potatoes 7s. to 8s. ditto.—**MALTON** (Saturday last): Potatoes a still trade, dealers only buying for table wants, and there being too much uncertainty for speculation. Retail 1s. to 1s. 4d. per peck. Crop small, but very sound.—**MANCHESTER** (Saturday last): Cheshire 14s. to 22s., Ormskirk 20s. to 20s. per 262lbs.—**YORK** (Saturday last): This market, both with regard to supply and prices, was much the same as the previous week. Kidney potatoes fetched from 1s. 1d. to 1s. 2d., and round ones 11d. to 1s. per peck.

## HOP MARKETS.

**BOROUGH, MONDAY, July 27.**—During the latter portion of the past week a better demand has prevailed in our market at last quotations. Reports from the plantations, although somewhat conflicting, are on the whole less favourable. In parts of the Weald of Kent and Sussex drought and attacks of red spider are more complained of, while in Mid and East Kent and Worcester the grounds are generally progressing well; rain, however, appears to be very much required. European reports are also less favourable. Bavaria and Bohemia are doing well; but the French and Alsot districts appear to be almost parched up. New York advices to the 8th inst. report no change in the market.

Mid and East Kent	.....	£3 10	.....	£4 15	.....	£5 12
Weald of Kents	.....	3 10	.....	4 0	.....	4 15
Sussex	.....	3 0	.....	3 5	.....	3 15
Farnham and country	.....	4 0	.....	4 15	.....	5 12
Yearlings	.....	2 10	.....	2 16	.....	3 0
Bavarians	.....	2 16	.....	3 0	.....	3 10
Belgians	.....	2 14	.....	2 18	.....	3 5

**WORCESTER HOP MARKET, (Saturday last).**—Considering the continued absence of rain, the hop grounds of the district have during the past week made satisfactory progress. The drought has done injury, which is now evidenced from the blind lateral shoots put forward, more particularly on light soils with gravelly bottoms, and by the Jones' plant, which stock shows a want of vigour, that at many places the crop can only be what is termed "a top one." Let it be understood that we look for a full yield on the average; but caution our friends in receiving the reports of some writers, who have predicted an overwhelming crop this year. The result of the growth will be much influenced by the weather during the next few weeks. Irrigation would undoubtedly prove beneficial, causing the young hops to swell out to a full size; otherwise the fruit will be dwarfed in growth, and further would tend to cheek red and white, which at places spreads; also lessen the ravages of the red spider. In early gardens, exceptionally, full-grown hops may be gathered; but ours is only now being generally developed, so that we cannot expect picking to be in full operation for a month or five weeks yet. This market is most barely supplied with stock, business being much checked by planters' indisposition to accept ruling prices.

## COVENT GARDEN MARKET.

**LONDON, SATURDAY, July 25.**

Fruit, both home-grown and foreign, continues to be largely supplied. Abundance of West India pines may also still be had. Kent alberts are coming in in very good condition. Potatoes run small in size, and prices for them are advancing. Cauliflowers and other vegetables are still showing the ill effects of the continued dry weather. Flowers chiefly consist of orchids, pelargoniums, fuchsias, mignonette, and roses.

### FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, $\frac{1}{2}$ bushel	4 0 to 5 0		Lemons, each	4 0 to 5 0	
Apricots, per doz	2 0	4 0	Nectarines, $\frac{1}{2}$ doz	6 0	10 0
Cherries, $\frac{1}{2}$ lb.	1 0	2 0	Oranges, new, $\frac{1}{2}$ 100	0 0	0 0
Currants, per $\frac{1}{2}$ sieve	4 0	6 0	Peaches, $\frac{1}{2}$ dozen	8 0	14 0
Figs, $\frac{1}{2}$ dozen	4 0	8 0	Pears, $\frac{1}{2}$ dozen	6 0	10 0
Filberts, per lb.	0 8	0 9	Pine Apples, per lb.	2 0	6 0
Gooseberries, $\frac{1}{2}$ qr.	0 4	0 8	Plums, per $\frac{1}{2}$ sieve	0 0	0 0
Grapes, $\frac{1}{2}$ lb.	3 0	6 0	Strawberries, $\frac{1}{2}$ lb.	0 0	0 0
Lemons, $\frac{1}{2}$ 100	8 0	14 0	Walnuts, $\frac{1}{2}$ bushel	0 0	0 0

### VEGETABLES.

Artichokes, per dozen	2 6 to 3 0	Mushrooms, $\frac{1}{2}$ pottle	3 0 to 5 0
Asparagus, per bundle	0 0 to 0 6	Must. & Cress, $\frac{1}{2}$ punnet	0 0 to 0 6
Beans, Kid., $\frac{1}{2}$ sieve	3 0 to 4 0	Onions, $\frac{1}{2}$ bushel	4 0 to 6 0
Beet, per dozen	1 0 to 2 0	Pickling, per quart	0 0 to 0 0
Brocoli, per bundle	0 0 to 0 0	Parsley, per bunch	0 2 to 0 4
Cabbages, per dozen	1 0 to 1 6	Paranips, per dozen	0 0 to 0 0
Carrots, per bunch	0 0 to 1 0	Peas, per peck	0 0 to 0 0
Cauliflowers, per doz.	0 0 to 0 0	Potatoes, York Re-	
Celery, per bundle	1 0 to 1 6	gents, per ton	170 0 to 190 0
Cucumbers, each	0 4 to 1 0	Shaws, per ton	140 0 to 160 0
Endive, per score	1 6 to 2 0	Myatt's, per ton	180 0 to 0 0
Garlic & Shallots, $\frac{1}{2}$ lb.	0 0 to 0 0	Other sorts, per ton	0 0 to 0 0
Herbs, per bunch	0 3 to 0 0	Kidneys, per cwt.	0 0 to 0 0
Horseradish, $\frac{1}{2}$ bundle	2 0 to 5 0	Radishes, per 12bnd.	0 0 to 0 0
Leeks, per bunch	0 2 to 0 0	Sea Kale, per punnet	0 0 to 0 0
Lettuces, per score	1 0 to 2 0	Spinach, per bushel	2 0 to 3 0
Mint, per bunch	0 6 to 0 0	Tomatoes, per dozen	0 0 to 0 0
		Turnips, new, per bun.	1 0 to 1 6

## CHICORY.

**LONDON, SATURDAY, July 25.**

There has been a fair demand, on former terms.

DELIVERABLE FROM WHARF IN BAGS, EXCLUSIVE OF DUTY					
Harlingen	...£18 0 to £19 0	Antwerp	...£2 0 to £2 0		
Bruges	...19 0 to 20 0	Hamburgh	...17 0 to 19 0		

## REVIEW OF THE CORN TRADE DURING THE PAST MONTH.

A very early harvest has come upon us, as might have been expected from the long course of brilliant sunshine and almost unprecedented heat. Clouds have often gathered, and here and there heat drops and slight showers have fallen; but patches of green have become quite a rarity, and some fears for the future supply of water and provision for cattle have naturally sprung up. A heavy fall of rain in the midst of harvest labour might do more harm than good, as though there is happily a fair prospect of a good wheat year, there is no surplus to spare on any other grain, which has all more or less suffered by the long drought. Much new wheat has already been sent to market, both in London and the country, the quality and weight above the average of years; but the yield will vary from a scanty produce on some light soils, to a great abundance on the deep well-farmed loams and heavy lands. 66lbs. is no uncommon weight this year, though many samples scarcely reach to 62lbs. The first parcel of Talavera brought the extreme price of 78s. on the second Monday; but equally good wheat could have been bought at 63s. on the last, and 60s. can now scarcely be depended upon, general accounts being so favourable. But with plenty of it, should it turn out that we have it, England has long ceased to grow enough for its inhabitants, and with a decline of 20s. from the highest, 8s. to 10s. of which must be placed to account of the present month, we may yet see some reaction. If the rain so long deferred should make up for lost time in quantity and continuance, a rise of 10s. on all fine dry samples would soon be the consequence; and as we are about one month early, we ought to have 13 months' provision on the ground to meet our coming wants with the ordinary imports. Spain has suffered from drought, and other southern countries, even France, partially, which country, like ourselves, was pretty well cleared out; and then prices in Paris are now so much above our own, that we may ere long find French orders in London. Belgium, London, and parts of Germany are yet above us, although for future delivery prices from the latter are low, and Hungary—that vast European emporium—is said to have 10 to 15 per cent. above the produce of last year. American accounts differ materially. The first reports were favourable to a large yield; but the last make this very doubtful, the South, and some land in the West as well, being reported as having suffered by heat and other casualties. In a very little time we shall be able to form better estimates of our future supplies, and the necessities of other places; but let us be thankful that the dread of high prices and scarcity has passed away, and the world now has a prospect that its teeming millions will all again be fed from the fields by the kindness of Providence. The following rates were quoted lately at the several places named: White wheat at Paris 70s., red

63s., white at Bordeaux 65s., wheat in Belgium to 69s., white Zealand in Rotterdam to 70s., Holstein at Hambro' 63s., Saale 64s., red at Cologne 57s., at Berlin 63s., ordinary mixed at Dantzic 63s. (there being no fine left), red at Mannheim 57s.; the range of prices for red wheat at Pesth, in Hungary, 36s. to 50s.; No 1. spring wheat at New York 50s., No. 2 48s. per 480lbs., spring wheat at Chicago 1 dollar 84 cents (47s. 4d. per 480lbs.), at Milwaukee No 1 1 dollar 90 cents (48s. 4d. per 480lbs.).

The first Monday in Mark-lane opened on very scanty supplies of English wheat, but with large arrivals of foreign. Very few samples appeared during the morning on the Essex and Kentish stands. Some picked parcels of red realised former rates; but to sell freely, less money would readily have been accepted. Millers, however, preferred to hold back, in expectation of yet lower rates. Foreign was a very slow sale—indeed, hardly anything was done; and low sorts were fully 1s. per qr. cheaper. Floating cargoes were very dull, at unaltered rates. Considerable variety was evinced in the different country advices this week. Croydon was full-priced, and many places only down 1s. per qr. Others receded 1s. to 2s., as Hull, Louth, Market Harborough, Chichester, and Banbury. Many were 2s. to 3s. per qr. lower, as Bury St. Edmunds, Dunstable, Melton Mowbray, Market Rasen, Rotherham, Lynn, Mansfield, and Thirsk. Liverpool was 3d. per cental dearer for white on the week, but 2d. cheaper for red samples. The Saturday's advices noted a general decline of 1s. to 3s. per qr. Edinburgh made no change in fine qualities; but Glasgow was 6d. per boll lower. Dublin and several other places in Ireland noted no change.

The second Monday had a few more English samples noted in the weekly returns; and there was a heavy supply from abroad. Very little was exhibited on the Essex and Kent stands; but a sample of new Talavera appeared, weighing 64lbs., and was sold at a very high price (78s.) to a town miller, for immediate use; but old qualities remained dull, at a decline of 1s. to 2s. per qr. Foreign also tended further downwards, without transactions, unless in retail at 1s. less money. Floating cargoes were little in demand, and barely supported previous values. The heat increasing in the country to a tropical degree, and dull accounts coming continually from London, with the prospect of very early gatherings generally, prices universally gave way about 1s. to 2s.; and in a few instances, as at Sleaford, this was exceeded; but so scarce were white samples at Liverpool, that their value was again increased equal to about 1s. per qr. Saturday's advices were generally in keeping with the previous country reports, most being down 1s. to 2s., and some 3s. per qr. Edinburgh was in calm, and

Glasgow again down 6d. to 1s. per boll. Dublin and other towns in Ireland remained dull, at nominally the same prices.

On the third Monday there were only short English supplies, but large foreign arrivals continued. More samples of new were exhibited from Essex and Kent—say about 600 qrs.; but, even with these, the entire show of English was very limited. Old was, however, down about 2s.; and sales of the new were made at moderate rates, the best 65lbs. per bushel Talavera not exceeding 70s. 6d., and some very good 64lbs. rough chaff 68s. In foreign very little was doing. Some middling Dantzic brought 64s.; but generally holders would readily have accepted a decline of 1s. to 2s. per qr. Floating cargoes were down fully 1s., with little demand. The weather continuing very fine all this week, with improved prospects as to the general yield of wheat, all the country markets showed a downward movement, and some went beyond the London decline of 2s., as Salisbury, St. Ives, Sheffield, &c., where rates were down 3s. for old wheat, there not being enough new to make prices quotable or settled. Edinburgh gave way 2s. to 3s., and Glasgow 1s. per qr. Dublin was 6d. per barrel cheaper, with hardly anything passing.

The fourth Monday had a small supply of English wheat, but a good arrival of foreign, though not equal to the previous Monday. There was but a moderate show of fresh samples during the morning on the Kentish and Essex stands, more than half being new, prices of which settled down at from about 58s. to 61s. per qr. Old also was down 3s. to 4s., with scarcely any demand for it. To sell foreign there would have been a similar decline; but we did not hear of any house being anxious to press at such a large reduction.

The imports into London during the four weeks were 10,584 qrs. English wheat, 132,556 qrs. foreign, against 9,635 qrs. English, 118,022 qrs. foreign for the same period in 1867. The London averages commenced at 67s. 5d., and closed at 63s. 3d. per qr. The general averages commenced at 67s. 5d. and ended at 65s.

The imports into the kingdom for four weeks up to 18th July were 2,846,067 cwt. wheat, 213,922 cwt. flour, against 1,994,965 cwt. wheat, 209,704 cwt. flour in 1867. The exports from London during the month were 910 qrs. wheat, 210 cwt. flour.

The flour trade has been equally dull with wheat. The first fortnight prices stood much the same; but in the third week country sorts were down 1s. to 2s. per sack, and town prices were reduced 2s.; while on the fourth Monday there was a further reduction of about 2s. on Norfolks and other country sorts, and town millers found it necessary to make a further reduction of 4s. per sack, bringing the top price down to 54s., thus showing a difference in flour of only 10s. from the extreme price, while the reduction in wheat has been 20s. The prices of French are now lower than they are in Paris; but New York may yet import from last advices, with chance of a small profit. The imports into London for four weeks were—in country sorts 49,320 sacks, in foreign 7,811 sacks 5,640 barrels,

against 59,975 sacks English, 8,634 sacks foreign for the same period in 1867.

The imports of maize have been fair, viz., 24,952 qrs. for the month; but there having been more inquiry for this grain since its reduction in price, there has been a reaction of 1s. per qr. in favour of sellers. Egyptian was worth 34s. to 36s., American 37s. to 42s. There have been fair exports from New York lately; but at present we do not anticipate much reduction in prices.

Very little barley of home-growth has come to hand during the month, the stocks being apparently exhausted; but there have been fair foreign arrivals, principally grinding qualities, which range from 30s. to 32s. per qr., and the better qualities to 36s. Some new English has brought 45s.; but very little has yet come to market. Some fine has been sold in the country at 46s. per qr. The quality is mostly steely and somewhat thin; but there is some stout and of very beautiful colour, whatever the yield may be. We think fine malting sorts are likely again to rule high all through the season, and that even low descriptions will be relatively dear. The imports into London for four weeks were—in British sorts 1,032 qrs., in foreign 47,656 qrs., against 1,029 qrs. British, 12,555 qrs. foreign in 1867.

The malt trade through the month has been very steady, without quotable change of values.

There has been an enormous importation of foreign oats during the month, but they were too much wanted, from the deficiency of our own crop and the shortness of stocks, that it has very little affected prices. Fine qualities have been very scarce, the bulk of the arrivals being only of the middling and inferior sorts, which have brought 23s. to 27s.; but good were worth 28s. to 31s., and even more when procurable. We believe we shall again require large imports, and that we shall have to compete with France as a purchaser, as the crop of that country is expected to be as deficient as our own. The few new, however, yet exhibited have been fine and heavy, where grown on strong soils. The imports into London for four weeks were 921 qrs. English, no Scotch, only 420 qrs. Irish, but 350,162 qrs. foreign, against 1,934 qrs. English, 216 qrs. Scotch, 110 qrs. Irish, 208,736 qrs. foreign in 1867.

We have had but few English beans and only a moderate supply of foreign, but it has been enough to keep the London market fairly supplied, while the hot weather and high rates have lessened consumption. During the month prices have advanced about 1s., but they are now checked by the lower rates of maize and grinding barley. The imports into London for four weeks were 1,362 qrs. English, 7,500 qrs. foreign, against 966 qrs. English, 2,149 qrs. foreign in 1867.

For a long period the supply of English peas has been very scanty, but for the last fortnight they have rather increased by the appearance of new samples of very fine quality, though we hear the yield is reckoned to be very deficient. On the last week we had a fair arrival of foreign white. Prices through the month gained about 1s. to 2s. per qr.; but boilers were finally a slow sale at 46s. The imports into London for the month were

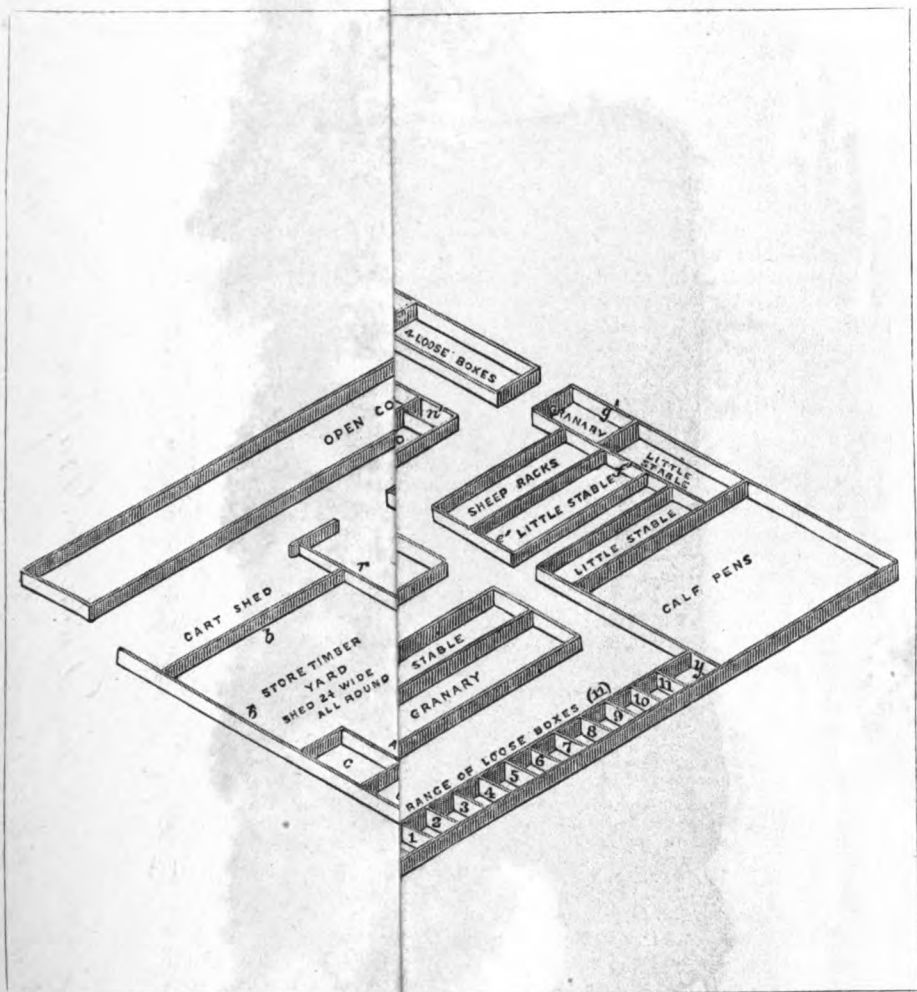








*The Duke of Grafton*  
*A large Horned Bull, property of the Earl of Grafton, bred at Grafton, London, published by the engraver, R. Smith, 1844.*



(Scale about 100 feet to the inch and quarter.)

# THE ON HOO.

The dotted line shows the steam pipe cover. S<sup>4</sup>—10 Horse-power. S<sup>5</sup>—16 Horse-power.



## PLATE V.

### THE DUKE OF GRAFTON; A PRIZE SHORTHORN BULL.

THE PROPERTY OF MR. JAMES CHRISTY, JUN., OF BOYNTON HALL, CHELMSFORD.

The Duke of Grafton, a red bull, calved April 15, 1864, and bred by Lord Penrhyn at Penrhyn Castle, Bangor, is by Duke of Geneva (19614), out of Duchess 1st by Master Rembrandt (16545), her dam Duchess Nanny by Jasper (11609). — Duchess Nancy by Second Duke of Oxford (9046). — Nettle by Second Duke of Northumberland (3646). — Nell Gwynne by Belvedere (1706). — Northallerton by Son of Second Hubback (2683). — a Cow of Mr. Bates of Kirklevington.

Duke of Geneva (19614), a red bull, calved February 16, 1860, and bred by Mr. J. O. Sheldon, Geneva, America, was imported into this country in 1862, and sold to Lord Penrhyn for 600 gs. He is by Second Grand Duke (12961), out of Duchess 71st by Duke of Glo'ster (11382), her dam Duchess 66th by Fourth Duke of York (10167). — Duchess 55th by Fourth Duke of Northumberland (3649), and so back through a whole line of Duchesses to Belvidere and Hubback.

Duchess 1st was bred by Mr. Barber, of Sproatley Rise, Hull, and sold at his sale in 1862 to Lord Penrhyn for 135 gs. She is out of a cow bred by Col. Towneley, the dam of which was purchased at Messrs. Bell's sale at Kirklevington, 1850, from whose stock Duchess 1st is descended. She won two first prizes as a heifer calf in the East Riding of Yorkshire, and her sire, Master Rembrandt, won nine prizes in Yorkshire and Lincolnshire, including a medal and cup.

The Duke of Grafton won the first prize at the Essex County Show at Baintree in 1867, and the first prize at the same Society's show at Chelmsford in 1868, in a class of 16 animals open to all England. He also won the first prize with Primula and her heifer calf Potentilla, for the best bull, cow, and offspring, against five other entries. Primula has also taken, on her own account, at the Essex meetings, first prizes as a calf, yearling, a two-year-old, and a cow.

We thus spoke of the Duke of Grafton on seeing him at Chelmsford in June:—"Mr. Christie kept the prize in the county with a big, long, broad four-year-old of nice quality, and with some capital points, being especially good in his back and hind quarters, and well let down to his hooks. Against all this, he is light in his neck, and has a rather tapering egg-

sucking head, but is, nevertheless, at all points, a grand useful bull. He could not take the first prize class of the county, because he took it in 1867; but the judges held to his line as far as they could. They made his daughter Potentilla their choice in the youngest class of heifers, and then took her with her father and mother as the best family party; while they got on the vein again with his daughter Patchouli 4th, a well grown, handsome yearling, of good colour and quality."

Mr. Christy's herd was commenced in 1849 by the purchase of two heifers at Mr. Barnard's sale at Gosfield Hall, and from one of these—Cowslip by Roan Robin (10721)—the main strength of the stock is derived. From this cow is descended the P family, members of which have been exhibited, and always with success, at the Essex County Show since its commencement in 1858. Cows or heifers have also been purchased from C. P. Grenfell, of Taplow Court, in 1857; from Mr. G. M. Tracy, of Edenbridge, in 1859; from Mr. J. S. Crawley, of Stockwood Park, in 1860; from Mr. W. T. Longbourne, of Blackmore, in 1858; from Mr. Jonas Webb, of Babraham, in 1863, and from Mr. J. H. Langston, of Sarsden, in 1864.

The farm adjoins Mr. J. W. Bramston's Skreens estate, and the bulls used on the Bramston herd of late years have also been used at Boynton. Amongst these have been Tortworth (10966), and Red Duke (16798), with much Bates blood, Comedian (15789) from Mr. Adkins' herd, while the Duke of Grafton has more recently been the lord of his own harem.

The herd now numbers 57 animals, viz., 25 cows, 13 heifers, 7 yearlings, 10 bull and heifer calves, and 2 bulls. The cattle are of good medium size, not coarse, with good ribs and loins. In colour red prevails, and they are generally uniform, more especially the P family. The stock is not kept high, nor pampered, but in good healthy condition for use.

The Boynton Hall farm, held from Lord Petre, consists of 700 acres arable under steam cultivation, and 100 acres of grass. Although good useful land it is not of the best quality, but it has been improved of late years, Mr. Christy being considered by his neighbours one of the best and most advancing agriculturists in the district.

## PLATE VI.

## THE FARM BUILDINGS AND KENNELS AT LUTON HOO.

In the year seventeen hundred and eighty-one two celebrated men joined in drinking the health of his then Most Gracious Majesty George the Third at the village inn of Luton, in Bedfordshire. And on that occasion one of them dictated to the other a letter—written and sent years before—to “My Lord Chesterfield,” which many a time since has been read with mingled feelings of melancholy and pride—melancholy that so great a man who had originally penned it had been subject to the neglect, if not the contumely, of the “pride of birth and of place;” pride that that man could so pathetically, yet nobly, vindicate the dignity and the worth at once of his calling as a “man of letters” and of his manhood. One of these men was the celebrated Samuel Johnson; the other, James Boswell—no less celebrated certainly, but in a much smaller, and quite in another way. We do not know whether this inn still exists in Luton, or if it does, whether tradition has marked the room, if not the very place in the room where those two men sat—one of whom has written his name in the page of our country’s history; the other who has written—well, we shall content ourselves with saying one of the most amusing books which was ever penned—but if the inn does exist, and the room is marked in memory of man, the next time we visit the beautiful neighbourhood of Luton we shall make a pilgrimage to that inn, and reverentially quaff a draught of its best ale in memory of one who influenced his times in a remarkable manner for good—a memory which all good men bear lovingly in mind.

On the day which preceded the evening we have named above, Johnson and Boswell visited the magnificent seat of the Marquis of Bute at Luton Hoo, now written Hoo, and we can fancy the remarks which Johnson would make in his grand bow-wow way, with his “Sir” this and his “Sir” that, and the way in which he would be attended and, shall we say, toadied by the obsequious Boszy. Johnson was so pleased with the Hoo, that he said of it, “This is one of the places I do not regret having come to see. It is a very stately place, indeed; in the house magnificence is not sacrificed to convenience, nor convenience to magnificence. The library is very splendid, the dignity of the room is very great, and the quantity \* of pictures beyond expectation—beyond hope.” This fine place was entirely burnt sixty-two years after John-

son visited and thus expressed his high opinion of it. Whether the house which was built to replace the magnificent mansion which thus called forth the praises of Johnson is the one at present on the estate, we know not; but, whether or no, it belongs not now to the “lordly house of Bute”—it has passed from the aristocracy of birth to that of wealth—and we commit no flattery when we say—of worth. The estate on which the present mansion stands is now in the possession of one of the leading men of “Lordly Liverpool”—that town of merchant princes—Mr. James Gerard Leigh.

We hear very much just now of the wonders that would be worked by the introduction, or rather the revival, of small farms; but if any one who is enamoured of this system—one which is, as far as experience goes, by no means adapted for this country—will only take the trouble to contrast a specimen of it with the large farms of men of means, who, by wealth judiciously distributed, and ably aided by sound practical farming knowledge, carry out extended improvements, we venture to say that he will begin to think that his notions as to what can be done by small farms in the way of furthering, and furthering quickly, the progress of agriculture, are necessary to be thought over again, and are very likely to be set aside as the result of this fresh thinking. And the estate of Mr. Leigh is precisely one to which we would send the advocates of small farms to gain knowledge of how wonderfully the progress of farming, in its highest and most scientific developments, has been aided by the judicious expenditure of money and knowledge on large and extensive farms.

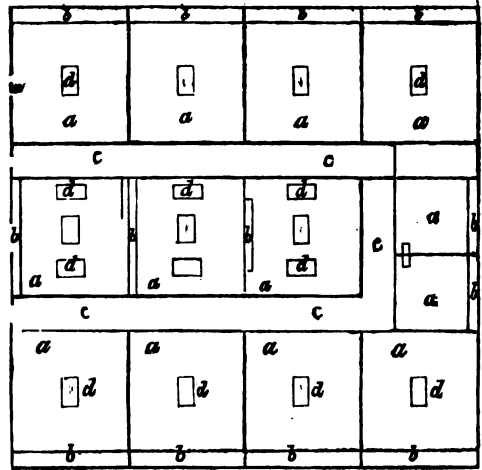
Before describing what has been done in improving the land, or farm proper, we shall take up the buildings by which the work of the farm is carried on. These, as our chief sketch will show, constitute in fact a “monster farmery, or homestead.” We are no believers in what are called “model” farmeries, inasmuch as the peculiarities of every well-designed farmery or homestead are regulated and brought into existence by the peculiarities of the farm for which it is designed, and those of soil, climate, and locality. Hence no farm can be said to have buildings which are “model” farm buildings, in the sense in which the term “model” is generally, we may almost say universally, used, that is applicable to be taken as a model to be followed in all places; but a building may be a model one, as applicable to a farm placed under the like circumstances in which it is placed, and may, moreover, if it is not a model one as a whole, possess many features which are worthy of being followed as models for practical copying. In this sense, and which we take it is the correct sense of the term, the farm buildings at Luton Hoo estate are model ones. Certainly, they are most extensive, “monster,” as we have already termed them.

\* We cannot here resist the temptation there is to express our surprise that the great lexicographer, the eminent philologist, should here have used the word “quantity” as applied to precious things as pictures. We apply, or ought to apply, this term only to things of abundant bulk, as wheat, sand, &c., &c. We apply, or ought to apply, to precious things as men or pictures—as in the present instance—the term “number.” So absurdly is the term “quantity” employed now-a-days, that we hear of a “quantity of men.” When we so hear, we are inclined to ask “How many bushels or gallons of them?”

and comprise many features worthy of special notice. This notice we propose now to give.

As the buildings in their complete arrangement, and the component parts occupying their relative positions, occupy so large a space of ground—some six or seven acres, including every detail—to represent them all on one plan, so that all the parts would be on such a scale as to make them intelligible, would involve either a larger drawing than our page could afford space for, or if brought down in scale to go therein easily, would be so minute as to reduce the practical value of the whole, which we propose if possible to give to our drawings; we have therefore adopted the other alternative, of giving, in the first place, an isometrical *block plan*, in which the relative positions are easily seen; and in the second a series of detached plans, drawn to a large scale, from which the fittings-up of the various apartments can be easily seen. We believe this plan of illustrating this fine and extensive series of farm-buildings the best adapted to place its peculiarities before our readers. We therefore give the block plan, shewing all the apartments in their positions relative to one another, and give here the general description of the same, reserving the detailed description of the various apartments till we present our detached plan. Beginning at the upper end of the block plan in the Plate, we find first the open corn-shed—for storing the corn in sheaves as brought direct from the fields, in place of having it open stacked—the length of which is 450 feet, and the width 36. At the end of this are two “loose boxes,” numbered 16 and 17 respectively. The whole of the central part of the farmery, at the upper part, is occupied with places for the stock, the upper line next the corn-shed being occupied by the top bullock-shed, on the lower side of which are the manure-yards. The open yards (Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10) are each provided with good store-rooms, as 2' 2', m' m', n' n'. At one end of the piggeries there is a boiling-room for preparing the food at j1, j2 being a privy. The large root-store has at one end an oilcake room (i), and the steam-engine room (S3); at the other end, the slaughter-house (Z). The milk-cow house ranges with the bottom bullock-shed. Separated by a wide cart-road, paved with granite, from the milk-cow house and bottom bullock-shed, is the range of buildings which contains the boiler-house (B), the steam-engine and mill-room (S1), the chaff-house, the coal-house, the hen-house (d'), the plough-iron stores (b'), and the saddler's shop (c). Below this range are the stables for the work-horses, with granary and coach-house (Z), and shed (a1). Facing these, and lower down, are a range of loose boxes (Nos. 1 to 11), with apartments at one end, as follows: t—bedroom belonging to the house and offices, of which a detached plan will hereafter be given; u—a tool-house; v—a mess-house for the workmen; w—coach-house; x—a nag-stable. The other end of the range of loose boxes (Nos. 1 to 11) is the boiling-room for calves' food (y) the calf-pens being adjoining, and divided as follows: a a a being the pens, with feeding troughs b b b, passages c c, and hay-racks d d; the dimensions of the central

range of pens being 22 feet square, of the upper range being 22 feet by 21 feet, of the lower range being 22



(Fig. 1.)

feet by 18 feet, of the end range 17 feet by 16 feet, the width of passages c c being 6 feet. Next to the calf pens are the little stables for the cart-horses, with a harness room at one end and a loose-box at the other, not shown in the plan, but in the position e1 and f1 respectively. Above the upper range of stables are the sheep pens; these being bounded on the side with the shepherds' granary. In a line with this, and further up, are four loose-boxes, Nos. 12 to 15 inclusive; above which is a shed; then a steam-engine room, for working the bone crusher; and above this, the implement shed.

Taking now the other side, or left of the block-plan in the Plate, we find first, as next to the cattle yards, the range of barns, as the oats, the wheat (with steam engine S4), and barley barn; p1 and q1 being seed rooms. To the left of these, divided by a granite-paved road, are the various workshops, these being placed round the central timber yard. The upper part of the timber yard is surrounded with a shed (b b b) 20 feet wide, c is the bricklayers', d the iron store, e a store, f smiths' shop, with shoeing house g, h the wheelers' shop, i mess-house for workmen, j position of stairs leading to the painters' shop above, k fire-engine house, l carpenters' and painters' stores, m carpenters' shop, with store room p, o the saw room, S5 the steam engine for working the circular saw under shed b, r r the cart shed, with store n for grains at one end. We have thus described the arrangement and position of the various parts which make up this vast building, and are now prepared to enter into a somewhat detailed description and illustration of some of its most striking characteristics.

And the first of these which claims our attention is the *distribution of power and of machines for performing the various operations of the farm*. Unlike the system which may be said to be universally adopted, we find here no concentration of power, and of the machines which that power is designed to work; on the contrary, we find a division of the power, and of the attendant

machines, these being spread over various parts of the building, as indicated by the position of the steam engines, not fewer than five in number, as indicated in the block plan in the Plate, by the letters S1, S2, S3, S4, S5. Some points of essential importance concerned in the economy of performing the labour of a farm, especially of a large one, are involved in the system here illustrated, which to the reader practically interested in the working of a farm will be interesting if explained somewhat in detail. But before doing so it will be well to give here our detailed plans to a larger scale, about 23 feet to the inch-and-a-half, showing the arrangement of the power, and the

machines in the various parts of the building. In fig. 2, we illustrate the arrangements in the range of buildings next the work-horse stables, in which *a a* is the steam boiler house, containing two forty-horse power steam boilers, on Howard's recently introduced principle. We shall presently explain why there is such an exceptionally—an apparently exceptionally large amount of boiler power given here; meanwhile we proceed to describe the other arrangements illustrated in fig. 2. The boiler house *a a a* is separated by a covered way *b b* from the mill house *c c*. This has at one end the apartment *d*, which contains a twelve-horse steam engine *e*; this works by means of the shafting *f f* and *g g* the various machines as follows:—*h* the grindstone, *i* the chaff-cutter, both of these being placed in the chaff-room *j j*, the shafting *g g* being suspended by "hangers" from the ceiling, and receiving motion from the shaft *f f* by the pulley *f k*, and belt *l*. In the room *c c*, *m m* are corn mills, and *n* an oat-crushing mill. The machines here do the work which is required chiefly for the horses, the stables and loose-boxes for which are all in the immediate vicinity, and can therefore be supplied with all despatch.

(fig. 2.)

Coming in like manner to the preparation of the food for the cattle, we find our way to the "root store," where the open yards Nos. 8 and 9 (see block-plan in Plate), in which we find another steam-engine (marked S3 in fig. 1) together with another set of machinery, all of which are illustrated in fig. 3, in which *a a* is the oilcake store, *b* the steam-engine room, containing 4-horse power steam engine, driving the various machines by means of the shafting *d d*: these machines are *e e* the oilcake breaker, and *f* the root cutter, the roots being stored up in the shed *g g* (see block-plan in Plate). The oilcake and the roots there broken and sliced are ready to be delivered to the stock in the various cattle yards adjacent.

Returning to the right-hand side of the building we come to the implement shed (see block-plan in Plate), and there find another steam-engine placed to prepare the manure of the farm, as illustrated in fig. 4; the steam-engine *a* in room *b* being of 10-horse power, working the bone-crusher *c*. On the opposite side of the building, that devoted to the barns, we find the fourth steam engine, as indicated by the detached plan in fig. 5, where *a* is a steam engine of 10-horse power, driving the thrashing machine *b*, and a powerful hay cutter in the room above, access to which is had by the stairs *c*. We now come to the fifth

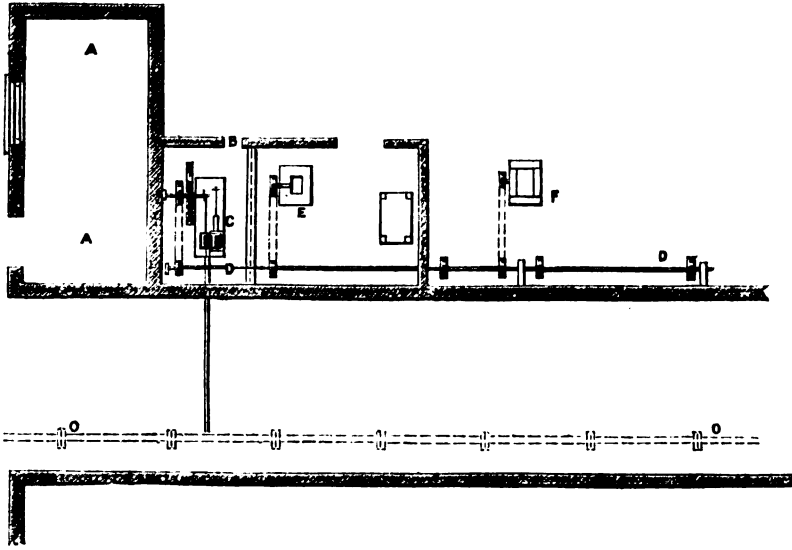
steam engine employed in this monster building, being that employed in the workshop department, and illustrated in fig. 6, in which *a* is the carpenter's store, and *b* saw room (see *o* and *p* block-plan in Plate), *c* steam engine of 16-horse power, driving by the shafting *d* and belting *d'* the saw mill *e*.

In finding, as the result of our detailed examination of the plan of this large farmery that both the power and the machines employed are not concentrated in one place, but distributed in several places, the question naturally opens itself up, why should this be, and how should a plan so opposed to that ordinarily, we may say universally employed, be adopted in preference, and what are likely to be the advantages arising from its adoption? It is worth while to devote short space and brief time to some of the points involved in the answer to these questions.



Some twenty years ago, or thereabouts, when called upon to examine the disastrous effects arising from a "break-down" of the gigantic steam-engine, which alone drove the machinery of a still more gigantic factory in the manufacturing districts, we were very forcibly led to speculate upon the whole circumstances of the case, and

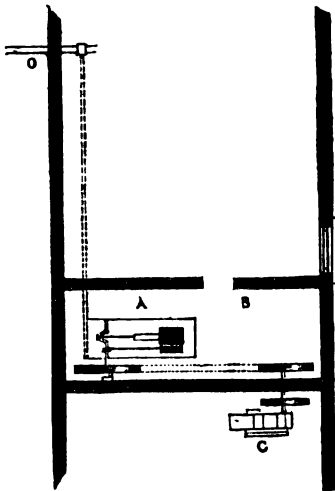
to ask ourselves, why should the whole work of a mill be stopped, and all the hands employed in it be thrown out of employment by the sudden stoppage of power which drove the machinery? We did not, indeed could not, possibly ignore the fact that steam engines, like men, would sometimes break down—a most expressive phrase



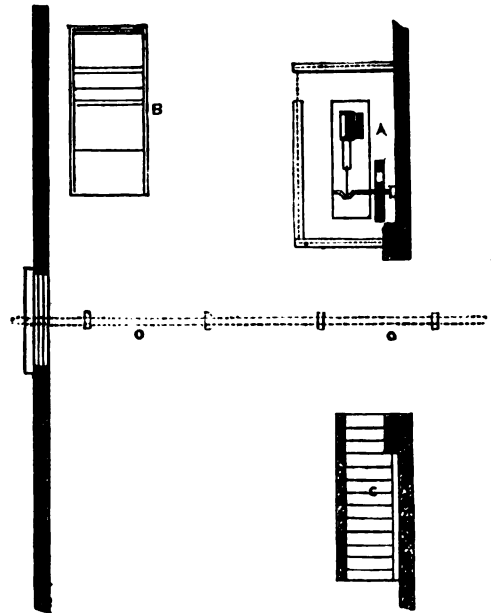
(Fig. 8.)

by the way—either through over-work, organic weakness, or functional derangement. But then it appeared to us that if by some means or another we could cease concen-

trating the power of the factory into one gigantic engine, and break up or subdivide that power into a number of small engines, we would at least lessen the ratio of loss



(Fig. 4.)

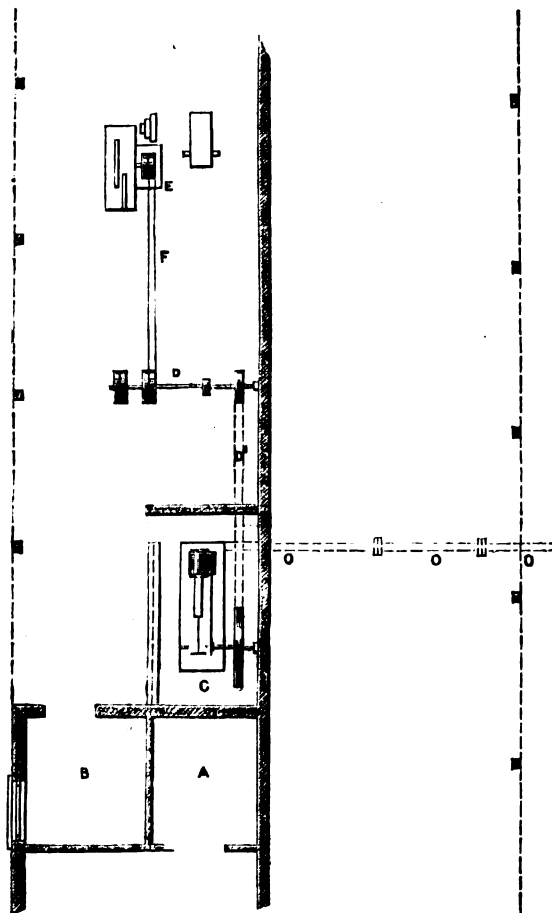


(Fig. 5.)

arising by a break-down. "Divide and conquer" was in fact the ruling principle we thought of, which could be in the present instance illustrated by other metaphors—"it is not safe to put all one's eggs into one basket," "all one's cargo into one boat." We therefore advocated the prin-

ciple of so laying out the power necessary to drive the aggregate number of machines, that one steam engine would drive one set, a second steam engine drive another set, and so on; and we maintained then, as we maintain now, that as the chances were that at no time would all these steam

engines be broken down—that if one did break down its neighbour would be at work; that then *all* the machines would not be stopped. We even went the length of advocating that for each heavy or large machine we would appropriate its own special engine. This extreme extension, as we may call it, of the principle was considered as altogether unlikely to be ever carried out; yet although not so carried out in factories, it is now being carried out in machine shops for the working of machines.



(Fig. 6.)

tical knowledge was able to realize the plan which we now see embodied in the block-plan in the Plate, and in the detached plans in fig. 1 to 6 inclusive. The essential feature in this plan is the establishment of a central source of steam supply in the building marked B in the Plate and *a* fig. 2. This being given in the form of two forty-horse boilers, hereafter to be described. From these boilers the steam is led by pipes to all the steam engines, the positions of which are shown in the block-plan in Plate, at S1, S2, S3, S4, and S5, and in detail in figs. 2 to 6 inclusive; the range of pipes is shown by the dotted line in the Plate proceeding up from boiler-house B, between the ranges of cattle-yards, and then branching off right and left to the implement shed on one side, and to the work-shop on the other. This steam-pipe is indicated in the various detail plans in figs. 2 to 6 by the letters O O. The pipes are laid in trenches in the ground, and all loss by radiation is prevented by contrivances which will hereafter be described.

At first sight the question may be raised as thus: If it is a good thing to take the steam-engine to the place where the work is to be done, not only because you get it thus directly to its work, but because you save the chances of loss arising from the break-down of one large central engine, does the same principle not apply to the steam boilers? If it is wrong to have a central steam engine, is it not wrong to have a central steam boiler? If this breaks down, or, what is just as likely, or perhaps more likely, blows up, what becomes of your steam engines? There is great force, at first sight, in the objection which these questions involve; but certain considerations come into play in the case of the steam boiler which do not operate or exist in that of the steam engine. The main consideration is that in a place like a farm-stead, where so much combustible matter is lying, and, in windy weather, flying about, it is not safe to multiply the chances of fire, which would be done by multiplying the number of steam-boiler furnaces; for let it be noted here that while by having only one central boiler you may place that in the safest position, and be able to make special provisions by which the danger from the furnaces is isolated, you moreover get rid of another source of danger by having a large and tall chimney, from which sparks, as a rule, never issue; but, on the contrary, if you

The principle in other words may be said to be the taking of the steam engine to the work, wherever that may be, and is most conveniently performed—thus, of course, multiplying the number of the engines as you multiply the sources of the work. You not only thus obtain a concentration of direct power precisely where it is wanted, but you get rid of the necessity of employing heavy gearing, and long ranges of shafts, and numbers of driving pulleys and belts; all of which are costly, and all of which absorb a large percentage of the power in merely driving them; whereas you want to do the work as directly and economically as possible. All this heavy gearing and shafting being absolutely essential where you employ one central source of power, and lead this off to various places at varying distances where it is required to do certain work. In saying that we advocated this principle of dividing steam power, and placing it exactly where it is required to do the work, many years ago, we by no means wish it to be inferred that the principle was thought of by no one else or advocated: the reverse of this; although at the time we advocated it few, very few, had done so, and many more were opposed to it than in favour of it; as, indeed, may be said to be the case even now, except in the cases of the most advanced engineers of the day. But our opinion of it having been so formed, and so long ago, we were therefore quite prepared to endorse the application of the principle to large farm buildings, as propounded to us by Mr. James Ross, the highly-intelligent and active agent of the Luton Park estate, to whose abilities nearly all of the improvements both in the estate and in the buildings on it are due. Yet, strange to say, or rather from what we have above said by no means strange, Mr. Ross, in talking over his plan of distributing the steam power over the building where wanted, by no means met with the encouragement which the “common-sense principle,” as he very graphically and truly calls it, seemed to his mind so well calculated to secure. At last, in Mr. James Howard, of the firm of Messrs. James and Frederick Howard, of Bedford, Mr. Ross met with one who not only at once heartily and fully entered into his views, but by the application of his practical

place here and there a number of steam-boiler furnaces where the steam engines are placed, you put these furnaces in the position which is precisely the most dangerous, for you place them near dangerous materials; and, moreover, where the power of the boiler is small, and not judiciously, as is sometimes the case, engineered (if we may use the expression), the chances of sparks arising from the chimneys are greater than in the case of larger fires. Further, it is more economical of fuel to raise steam in, say, two large boilers, than in five smaller ones placed under different circumstances. Moreover, by having thus centrally raised steam, you can turn it to any one steam engine at a moment's notice, and work it, if it should only be required, for half-an-hour; whereas, to raise steam in a separate boiler for only this short duration of working would be evidently a loss. At the same time we by no means are

disinclined to admit that where the circumstances of the farmers will permit of it, it would be better to distribute steam-boiler as well as steam-engine power over the farmery where the power is required, thus both in steam and engine lessening the chances of losses by either the one or the other breaking-down or blowing-up, as the case may be, in the one case, to put the point in rather involved fashion. The arrangement, however, as indicated in the plan, has been, in the case of Luton Hoo Farm, well thought over, and only carried out after mature consideration. As carried out, it is a perfect success. We saw the system in full operation, under circumstances which could not possibly be more disadvantageous to its successful working, and yet it worked in every way successfully: it is still so working. What have been the means by which this success has been attained we shall describe in our next.

(To be continued.)

## WARM SUMMERS.

BY CUTHBERT W. JOHNSON, F.R.S.

The effect of varying temperature upon our cultivated crops is a theme of considerable interest to my readers. An unusually warm summer, like that of 1868, naturally suggests to us more than one branch of the inquiry. To avoid, however, taking into consideration matters which would lead us far beyond our assigned limits, let us on this occasion confine our attention to the effects of a high summer temperature upon the wheat plant.

We need hardly remind ourselves that the best wheat is grown in climates where the mean temperature is high, and the rainfall very small. At Madrid the annual rainfall is only about 10 inches: in Egypt there is hardly a shower.

Then, with regard to the average temperature of England, Madrid, and Cairo, during May, June, July, and August, it is as follows:

	May.	June.	July.	August.
England...	56	59	63	62
Madrid ...	63.10	71	78	78
Cairo .....	78.26	83	85	85

Some years since the farmer's attention was drawn to this inquiry by Mr. Whitley, in a very valuable prize essay, and to this he has recently added another report (*Jour. Roy. Ag. Soc.*, vol. xi. p. 1; vol. iv., N. S., p. 88). Now as he well remarks in one portion of his Essay: "As a general rule, we find that where the mean temperature of a district is high, that there the corn produced is excellent. The mean annual temperature of Edinburgh is 47.7; Keswick, 46; London, 51.9; Philadelphia, 52.5; Cairo, 78. The effect, then, of increase of mean heat is to improve the value of the corn; but there are many causes which modify and vary this general rule. The great heat of a Polish or Russian summer, for instance, more than compensates for its shortness. The length of the days of a northern summer, by giving the extra stimulus of light, also materially aids the rapid maturity of the crop. Amongst retarding influences must be classed the elevation of the land. From the observations of Schubler, in Saxony, he drew the conclusion that every 98.26 feet caused a delay in the harvest of wheat, barley, and oats of 2.2 days. In our climate, all other things being the same, we think that nearly a similar rule of retardation is observable; but here, again, many circumstances cause a deviation from the rule—such as the nature of the soil, and more especially the subsoil, and the more or less rapid rate of elevation. The harvests on gravelly or silicious soils are much earlier, and those of clay soils much later, than our calculations

with regard to the climate or elevation would justify. The harvests, for instance, on the gritstone or moorlands of Yorkshire, at an elevation of 500 feet above the level of the sea, are always later than on its Chalk Wolds at 800 feet. We may, perhaps, take it as a general fact, that all land in England, at an elevation of 1,000 feet above the sea, can only be profitably employed in pastures. The line of extreme cultivation rises gradually as we approach the equator. In some of the Steppes of the Himalayas barley is successfully cultivated at more than 14,000 feet above the level of the sea; wheat up to 12,022 feet—the height of our highest mountains is only about one-third of this—Helvellyn is 8,055 feet; Ben Macdui, 4,148; Macgillivuddy in Ireland, 3,410. The result of Mr. Kirwan's observations was, that in moderate rates of elevation above the level of the sea, such as at the rate of 6 feet per mile, for every 200 feet of elevation the mean annual temperature would be reduced  $\frac{1}{4}$  of a degree; that if the rate of elevation was 7 feet per mile,  $\frac{1}{3}$  of a degree must be allowed; if 13 feet, then  $\frac{1}{2}$  of a degree; and if at the rate of 15 feet or upwards, then  $\frac{2}{3}$  of a degree must be allowed. In rising above the level of the sea, the mean temperature gradually decreases, until at length we arrive at the line of perpetual snow."

Temperature, we all know, materially influences the system of cultivation adopted even in different districts of our islands. It may be useful, then, if we examine the records kept in 1847 and 1848 at three stations in corn-growing districts, viz., London, Thwaite in Suffolk, and Thetford in Norfolk, and contrast them with the register kept at Falmouth, Exeter, Manchester, Whitehaven, and Durham (all pasturage localities), and note the mean monthly temperature of these places during the corn-maturing months of June, July, and August. The following are the results:

### CORN DISTRICTS.—1847.

	June.	July.	August.
London ... ..	58.5	65.8	63.7
Thwaite ... ..	59.1	65.9	64.3
Thetford ... ..	62.5	72.0	69.5
Mean of three stations ... ..	60.0	63.6	65.8
1848.			
London ... ..	59.76	62.98	59.71
Thwaite ... ..	60.37	63.97	62.39
Thetford ... ..	64.5	70.00	63.00
Mean of three stations ... ..	61.54	65.4	61.7

## PASTURAGE DISTRICTS.—1847.

	June.	July.	August
Falmouth ... ..	56.9	61.9	58.1
Exeter ... ..	58.9	63.9	62.4
Manchester ... ..	58.4	64.9	60.3
Whitehaven ... ..	57.7	63.2	58.8
Durham ... ..	55.7	61.5	56.5

Mean of five stations ... ..	57.5	63.1	59.2
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1848.

Falmouth ... ..	57.64	60.35	57.93
Exeter ... ..	58.42	60.76	58.76
Manchester ... ..	59.48	61.44	59.73
Whitehaven ... ..	57.56	59.87	59.87
Durham ... ..	58.96	59.14	57.26

Mean of five stations ... ..	58.4	60.3	57.3
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The mean temperature at Greenwich, on an average of 35 years, from 1815 to 1849, was (*Belleisle on Thermometer*, p. 50):

January ... 36.47	May ..... 53.74	September. 57.30
February.. 38.78	June ..... 59.74	October ... 50.41
March .... 42.04	July ..... 62.47	November. 43.62
April ..... 46.78	August ... 61.90	December . 39.41

The mean temperature of the seasons, in periods of five years during that portion of time, was as follows: Spring, including March, April, and May; Summer, June, July, and August; Autumn, September, October, and November; and Winter, December, January, and February (*ibid*, p. 52):

	Spring.	Summer.	Autumn.	Winter.
1815 to 1819.....	47.93	61.99	50.49	38.36
1821 „ 1824.....	47.92	61.01	51.40	37.96
1825 „ 1829.....	47.86	62.16	50.41	38.91
1830 „ 1834.....	48.25	60.93	50.52	38.28
1835 „ 1839.....	45.23	61.35	49.41	37.64
1840 „ 1844.....	48.58	61.00	49.87	37.95
1845 „ 1849.....	47.39	61.56	50.73	38.67

35 years' mean ...	47.55	61.43	50.42	38.22
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Mr. Whitley has carefully and laboriously examined the effect of the temperature of the seas which surround us upon our climate (*ibid.*, vol. iv., N.S., p. 55. Similar observations upon this great influence of the sea early attracted the attention of mankind. Camden quotes several ancient authors to this effect. Thus Minutius Felix observes (in the third century): "Though Britain enjoys not so much the aspect and influence of the sun, yet, instead thereof, it is refreshed and comforted by the warmth of the sea which surrounds it." And Cicero remarked: "The seas, tossed to and fro with the winds, grow so warm, that hence it may be reasonably inferred that there is a certain heat that lies concealed in that vast fluid body."

Mr. Whitley has given the following table of the relative amount of heat at the places mentioned during the winter months:—

PLACES.	Dec.	Jan.	Feb.	Mean.
	Deg.	Deg.	Deg.	Deg.
Scilly Isles .....	48.0	46.3	45.8	46.7
Cork .....	42.8	43.9	44.5	43.7
Sandwick (Orkney) .....	41.0	39.6	38.4	39.7
Penzance .....	45.2	42.6	44.9	44.2
Exeter .....	42.3	41.0	41.1	41.5
Greenwich .....	39.8	36.9	38.7	38.5
Edinburgh .....	39.7	37.4	38.2	38.4
Montpellier .....	45.7	42.1	44.8	44.2

We find from this table, as he observes, that during the three winter months Penzance has a temperature precisely the same as that of Montpellier; Cork falls short of it by only half a degree; and the heat of the Scilly Isles exceeds this noted winter resort by  $2\frac{1}{2}$  degrees.

At this season Edinburgh has the same amount of heat as Greenwich, although 350 miles further north; and yet 200 miles further, at Orkney, the winter temperature

exceeds that of Greenwich by one degree. But figures do not represent so vividly the geographical distribution of heat as lines of equal temperature, which show at a glance that our winter-warmth comes from the sea on the west. The lines cluster on our western coasts, and truly represent the waves of heat which in winter sweep in from the Atlantic, each wave being warmer than that which preceded it. These lines of equal temperature (isothermals) are given in an excellent meteorological work by Mr. A. Buchan, the Secretary of the Scottish Meteorological Society. He thus describes the effect of the Gulf Stream on our winter temperature: "The Gulf Stream leaves its impress unmistakably on the temperature of each of the months, as shown by the position of the monthly isothermals. In winter the deviation from their normal or east and west direction is greatest. Indeed, as regards Great Britain, the lines are then at right angles to this normal direction, and lie north and south. In Ireland they seem to envelope the island with their folds, which increase in warmth from the centre of the island outward to the ocean. This points out clearly that the great source of heat from which the climate of Great Britain derives its warmth is in the west; in other words, it is regulated by the ocean."

This winter warmth is first suffused along the western coast-line, and then sweeps up the valleys which open on the south-west to the sea. A glance at a geological map will show that all the older rock-formations have in these islands a general strike from the north-east to the south-west, and thus govern the direction of many open valleys and mountain chains. This is particularly the case in the south-west of Ireland, where the valleys and bays open funnel-like to the sea; and on the west of Scotland the firths and lochs have a similar arrangement. In England the bell-mouthed Severn opens up a passage for the warm wind to the middle of the country.

The flat surface of the middle of Ireland enables the westerly wind to have a clear sweep over most of the island; it afterwards sheds its heat on the plain of Cheshire, and deluges the Cumberland mountains with rain.

The hills which constitute the backbone of England form a dividing wall of climate, which may be traced from the Cotswolds northward along the crests of the Pennine range to the Cheviot hills. On the west of this line we have the warmth and humidity of the ocean, on the east the dry air and greater summer heat of the Continent. It is a wall which, so far as climate is concerned, divides the arable field from the grazing lands of England: on the one side there is a preponderance of corn-growing power, on the other of meat-producing capabilities. The texture of the soil and the demand at the market may modify this conclusion; but other things being equal, submission to the teaching of climate will in the long run be found the safest and most profitable course for the farmer to pursue.

After the end of April and during the summer months the British Isles receive no warmth from the surrounding seas; but the wide ocean on the west then produces a contrary effect. As the great wave of summer temperature sweeps northward over Europe, it is retarded by the cooler air from the sea on the western coasts, where the isothermals are bent southward along the coast-line from Denmark to Belgium.

The amount of heat which in July rests on the south of England is on the Continent extended further north than St. Petersburg; and in this month the summer heat is as great at Tornea and Archangel as at Edinburgh.

The comparatively low temperature of the water of the German Ocean in summer tends also further to reduce the influence which the high summer temperature of Central Europe would otherwise exert on the eastern plains of England; but any defect of our climate due to

this cause is more than compensated for by the equality of temperature and steady downfall of rain which we enjoy, and which give a capability of productive power to the soil of England far greater than the dry summer heat of the Continent could bestow.

The temperature of the surface of the Atlantic Ocean during every month and at every 10 deg. of longitude from the south coast of Ireland, crossing in our way the Gulf Stream, to the Banks of Newfoundland, has been given by Mr. Whitley in the following table:—

MONTHS.	On the Banks.	Degrees of West Longitude.				
		40.	30.	20.	10.	
	Deg.	Deg.	Deg.	Deg.	Deg.	
January .....	30	57	54	54	51	
February .....	31	54	52	52	50	
March .....	32	54	55	54	51	
April .....	34	57	55	54	52	
May .....	34	55	55	55	53	
June .....	40	60	58	58	57	
July .....	45	60	58	60	59	
August .....	50	61	60	60	59	
September .....	52	59	60	60	58	
October .....	47	59	56	57	55	
November .....	44	58	58	57	53	
December .....	32	55	54	54	52	
Mean of Year .....	39.2	57.2	56.2	56.2	54.2	

This table shows the extreme coldness of the water on the banks of Newfoundland for half the year, from December to May inclusive, when it is but little above the freezing point (32 deg.) The Arctic current, owing to its greater velocity at this season, and the icebergs with which it is then loaded, impinges with great force on the upper limit of the Gulf Stream, and presses it down full 200 miles to the southward; but this powerful current cannot thus be subdued; it first bends eastward, and then its northern edge curves up in a mighty eddy, like river-water below the piers of a bridge, along the eastern edge of the cold current, and folds it in its warm embrace. This remarkable eddy stands like a wall of fire on the eastern side of the cold current through which the icebergs cannot pass to chill our summers, or depress the genial warmth of our winter months. It has in January a temperature of 57 deg., which is higher than that of the air in the month of May on the south coast of England.

From this part of the ocean eastward, for at least a thousand miles in extent, the temperature of the surface water in January is about 54 deg., it reaches its minimum of 52½ deg. in February, and its maximum of 59½ deg. in September, having a yearly range of only 7 deg. Over this thousand miles from west to east the heat distributed through the water is in the various months remarkably uniform.

In passing through a brilliant warm summer like that of 1868, we are naturally inclined to compare it with other years. Now, we find that more than forty years have elapsed since, in 1826, we had a summer resembling in its dryness, and mean temperature, that of the present year. If we compare the rainfall of these summers we find that in the neighbourhood of London the amount recorded was as follows:—

	1826.	1868.
January .....	0.3 inches	3.69 inches.
February .....	1.7	1.06
March .....	1.7	0.81
April .....	1.0	1.72
May .....	2.5	0.78
June .....	1.0	0.26
July .....	2.4	1.16

10.6 " 9.48 "

Then as to the temperature these years, Mr. G. J. Symons has furnished us with the following record of the mean, maximum, and minimum temperature of each month in 1826 and 1868:—

	1826.		1868.	
	Max.	Min.	Max.	Min.
April .....	61	40	59	41
May .....	64	41	70	48
June .....	78	61	76	52

In the month of July the comparative temperatures during the first twenty-four days were as follows:—

Date.	July, 1826.		July, 1868.	
	Max.	Min.	Max.	Min.
1 .....	81	56	75	53
2 .....	88	52	77	55
3 .....	89	52	86	57
4 .....	86	60	72	56
5 .....	87	58	72	48
6 .....	87	66	72	52
7 .....	85	62	79	52
8 .....	83	64	84	54
9 .....	83	54	86	56
10 .....	80	56	82	54
11 .....	78	62	85	54
12 .....	78	64	83	56
13 .....	75	55	86	55
14 .....	78	60	88	54
15 .....	75	54	88	58
16 .....	73	40	91	61
17 .....	79	51	84	64
18 .....	78	58	86	62
19 .....	74	54	82	62
20 .....	72	59	90	55
21 .....	73	49	93	63
22 .....	74	50	93	64
23 .....	76	54	78	66
24 .....	70	55	77	49

Mr. Symons has added in another table the subjoined abstract of high temperatures at Camden-town, near London, since the year 1857, during the months of May, June, July, August, and September.

YEAR.	MAY.				JUNE.				JULY.				AUGUST.				SEPTEMBER.			
	Max. in shade.	Days reaching			Max. in shade.	Days reaching			Max. in shade.	Days reaching			Max. in shade.	Days reaching			Max. in shade.	Days reaching		
		70°	80°	90°		70°	80°	90°		70°	80°	90°		70°	80°	90°		70°	80°	0 °
1858	80.6	3	1	...	92.6	29	15	1	87.4	24	2	...	84.5	24	5	...	85.0	13	2	—
1859	78.4	10	...	...	80.8	23	2	...	91.9	30	17	3	87.1	24	6	...	76.6	5	...	—
1860	76.1	5	...	...	71.9	4	...	...	75.9	17	...	...	70.3	1	...	...	71.0	3	...	—
1861	80.8	10	2	...	83.6	17	2	...	76.8	25	...	...	89.5	27	6	...	82.0	23	1	—
1862	81.1	9	1	...	78.8	10	...	...	80.2	18	1	...	78.1	18	...	...	74.2	6	...	—
1863	79.4	7	...	...	80.9	13	1	...	85.0	23	7	...	83.8	25	4	...	71.8	2	...	—
1864	84.5	9	4	...	78.2	19	...	...	86.6	27	11	...	89.4	21	8	...	74.9	10	...	—
1865.	81.0	20	1	...	88.2	24	7	...	85.3	29	10	...	78.7	22	...	...	85.0	25	10	—
1866	72.2	5	...	...	86.1	16	6	...	86.6	21	7	...	80.0	20	2	...	74.0	6	...	—
1867	84.0	9	4	...	82.5	14	8	...	76.9	22	...	...	88.2	25	4	...	79.0	10	...	—
Mean	79.8	8.7	1.3	...	82.2	16.2	3.6	0.1	83.3	23.6	5.5	0.3	83.0	20.7	3.5	0.0	77.4	10.3	1.3	0.0
1868	87.6	16	2	...	87.8	27	8	...	93.3	24	16	4	...	...	...	...	...	...	...	—

Like that of the present year, the harvest of 1826 was very productive: there was therefore little need of a foreign supply of corn. In 1826, only 814,851 quarters of foreign wheat and flour were entered for home consumption, and only 405,255 quarters in 1827; the import duty per quarter in 1826 being 11s. 3 $\frac{1}{2}$ d., and 21s. 4 $\frac{1}{2}$ d. in 1827. In the experimental plots of Mr. Lawes, at Rothamsted, where wheat has been grown continuously for a quarter of a century, the produce of seed in each year has been found to pretty closely represent the average produce of the Kingdom. Now the average produce per acre on these plots has been as follows—

Average of sixteen years..... 36 $\frac{1}{2}$  Bushels.

Produce in 1868 ..... 44 $\frac{1}{2}$  „

or more than 20 per cent. above the average.

The amount of wheat and flour imported in any year pretty clearly indicates the amount grown in our islands during the preceding summer. Mr. Caird has constructed the following table, which shows very clearly how, during five years, the supply of foreign wheat has nearly uniformly supplied the amount of the deficient preceding harvest:—

Crop.	Rate of produce of bushels per acre.	Total home produce.	Estimated requirements.	Foreign supply received during succeeding year.	Average price of that year.	Total supply.
		Qrs.	Qrs.	Qrs.	s. d.	Qrs.
1862	29 $\frac{1}{2}$	13,700,000	7,100,000	7,305,000	1863 44 9	30,805,000
1863	35 $\frac{1}{2}$	16,300,000	4,500,000	6,727,000	1864 40 2	33,027,000
1864	32 $\frac{1}{2}$	15,000,000	5,900,000	6,028,000	1865 41 10	21,028,000
1865	29	13,400,000	7,400,000	6,850,000	1866 49 11	30,250,000
1866	25 $\frac{1}{2}$	11,700,000	9,100,000	7,283,000	1867 64 4	18,983,000
			33,900,000	34,094,000		30,800,000 average of five years.

It is evident, then, as Mr. Simpson remarks (*Jour. Roy. Ag. Soc.*, vol. ii. p. 650), that the warmest and driest seasons are the most favourable to the yield of wheat. But though wheat requires heat and dryness to ripen and perfect its seed, yet being one of the grasses, it requires, for the development of its stalk, &c., moisture and warmth during its growth as a grass; and its fibre will be deficient, unless the season be favourable from April to June. Thus in the very fine warm season of 1846 the south-eastern counties had rather light crops; yet in moist situations never were the wheat crops better than in that year. In Ireland, with its moist climate, the wheat crop of 1846 was very fine.

We find, then, that the effect of warm dry summers, like the exceptional seasons of 1826, 1846, and 1868, is to ripen our cereal crops, and produce an abundant supply of fine seed: of course, the result produced upon our root and grass crops is injurious, and perhaps never more so than in the present year. To meet this present deficiency of winter food for our stock, great and, we trust, successful efforts are making, and have already been made, by late sowings of green crops; so that there is a reasonable expectation that, by God's blessing, when we arrive at the year of grace 1869, we may still concur in the truth of the adage of the English farmer, that "a warm dry summer never yet was injurious to Old England."

### GROWING CLOVER SEED.

There are several reasons why farmers should grow more clover seed; not the least important is to have plenty of seed to sow. Few farmers will sow as much clover seed, when it is bought at a high price, as when they have raised a good

crop; either some field or part of a field, that ought to be seeded, will have to lie over, or if all land in proper condition is sown, there is often a rather light seeding—"it costs so much for seed." The great need of improving the soil, and the well-known value of clover as a renovating crop, show that this is poor economy. There is more or less lost in the quantity and quality of the crops grown from such seeding; so that, to save one dollar in seed, ten dollars in products are often sacrificed. The best remedy for this is to grow plenty of seed; then, when disposed to seed liberally, the farmer will not be prevented by any draft on the pocket-book.

Another good reason is that clover seed, if well managed, is a profitable crop—more so, in fact, than most farmers appear to be aware of. They do not seem to consider that usually two crops are grown in the year—one of hay and one of seed; and that these crops are often of considerable value—say an average of 1 $\frac{1}{2}$  tons of hay, worth, at 10dols. a ton, 15 dols., and 2 $\frac{1}{2}$  bushels of seed, at 6 dols. a bushel, also 15 dols., making 30 dols. an acre in one season. And these are only ordinary crops; often two tons of hay and four or five bushels of seed (seven bushels have been grown in this way in this county) are grown to the acre, while prices are often much higher, giving from 40 dols. to 60 dols. per acre for hay and seed.

This is the usual way of growing the small kind. The other variety, being a larger and later plant, requires different management. There is not so much of this kind grown, but the price being higher, now and then a farmer makes it profitable. A friend of the writer is quite successful with this variety, his general average being five bushels per acre. Last season he grew forty-three and a-half bushels on eight acres—nearly five and a-half bushels per acre. This seed has probably sold for some 8 dols. or 9 dols. a bushel, which, with the pasture—it is fed close up to the 10th of June, and the seed comes off early in September—makes it a very profitable crop; and this, too, it should be remembered, is grown without any expense for fitting the land or other cultivation.

How many farmers do a large amount of work, in fitting and cultivating land for grain crops, that do not return half the money! And how few are the farmers that make their grain crops realize better returns! The one referred to is a full better farmer than the average, and grows more or less wheat, barley, corn and oats; and it is very doubtful whether any one of these grain crops averages as much money per acre, one year with another, as his clover seed. And yet, while all the grain crops are expensive for cultivation and seed, clover seed, in reality, costs nothing for either, the clover giving a considerable profit in the second year's crop, and improving the soil over all expense for seed and use of land. There is, in fact, no cultivation required; making the land in good condition for wheat or barley is the best for clover seed.

And then, there is no great difficulty in growing clover seed, although many fail, or come short of the best results, because the different operations are not attended to in their proper season. Farmers are careful to harvest wheat and other grain crops in the proper season; but leave clover standing until it is convenient to attend to it. But there is often great loss in this way. Not that the seed that is left is injured, but that a large part is shelled off the heads. The chaff shells off very easily; and when the farmer may think it best to wait a little for some of the later heads to ripen, he may lose a considerable share of the earliest and best seed.

If a good crop of seed from the small kind is desired, the first cutting must be early. When it is as soon as the first of July, there will often be double the seed grown in the second crop, that will be secured if the first cutting is ten days later. Still, but few farmers take pains to cut clover hay early. Often, to save hiring a week or two, the clover stands until the tenth or fifteenth of July, when, of course, the following crop of seed must be light. Although the farmer thinks little about it at the time, yet he has sacrificed a large part of his crop of seed—perhaps made it so late that it will not be thought worth saving, and lost from ten to twenty dollars per acre to save a few dollars for hired help. Each year's observation proves that this is often the case; and no doubt thousands of farmers in Western New-York lose, or fail to realize, hundreds of dollars each every year by such mismanagement with clover and clover seed.—*American Country Gentleman*.

## ON THE CULTIVATION OF THE SUGAR-BEET.

Events of various kinds, agricultural and economical, as well as political—with the former of which we have alone here to concern ourselves—have given a large and prominent, and time alone can show whether it will be or will not be permanent, interest to the affairs of Ireland. Amongst the points thus raised, all of which are interesting, many of them most important, is one connected with the improvement of the agricultural prospects of the island, bearing upon the introduction of what is called a “new industry,” or what would be more properly called a new development of agricultural labour—this is the *cultivation of beetroot* for manufacturing or industrial purposes; these being mainly the making of sugar, if not that of the distillation of spirits. This, in a recent correspondence, with which our readers may be more or less familiar, has been opened up with considerable spirit, but time will show whether this spirit is to be maintained or not. Meanwhile we may here note that, if introduced into Irish farming, it will not, as many seem to think, be newly introduced; for it so happens that the plan has been tried before, and with what success we shall see as we proceed. It further happens that the writer of the present paper was called upon, during the period in which the cultivation of beetroot was carried on in Ireland, for the special purpose of aiding the introduction of sugar-making into the list of her manufactures, to visit the factory at that time set up near Portarlington (at Mountmellick), and to report not only upon its working and its prospects, but also upon the general features of the cultivation of the root itself, with a view to its uses for sugar-making. He therefore deems it possible that by giving here a rapid *résumé* of what he there learned, he may be able to throw around a subject which possesses in itself many points of practical usefulness that degree of interest which is likely to be of some service to those connected with agricultural pursuits. For it is very suggestive that whatever be the result of the extended increase in the use of beetroot for sugar-making purposes, one result of its cultivation must be the “bettering”—to use a graphic, if not strictly grammatical word—of the farming of the districts in which it is adopted, for bad farming and good beetroot crops are quite incompatible. Hence, there will, in the consideration of the subject, this good come out of it, independently of its immediate interest as an Irish question, that many hints useful in root culture generally will be obtained; as what is applicable to the cultivation of beetroot is more or less directly applicable to that of other roots used by the farmer. This much, therefore, by way of not altogether unnecessary preamble. But before going from its “preamble” into the body of the “Act,” so to say, it will be interesting to glance very briefly at the historical points connected with the subject of the application of beetroot to sugar-making purposes.

We have to go back for nearly a century and a-quarter to find the first record of the use to which beetroot was proposed to be put as a source from which to obtain sugar. In 1747, Margraff, a then much celebrated chemist, investigated the root in this aspect, and as the result of his investigations showed that from white beet he obtained six and a-quarter per cent. of sugar, and from other varieties four and a-half. As showing the influence of good culture in the increase of the saccharine properties of the root, we may here point out that the average percentage of roots now cultivated in Germany

is ten and a-half, which often rises to twelve and a-half. By the time Margraff commenced his investigations, several varieties of beet were in cultivation; but for the period of introduction of the root itself as a farm product we have to go back to a still earlier period, and we find that in France it was first introduced in the reign of the celebrated Henri Quatre; and it was highly recommended as a food for cattle by the well-known Oliver de Serres, then the great agricultural authority of the day.

Although, in view of the high price of colonial or cane sugar which then prevailed, and which almost rendered its use a prohibitive, Margraff at the date named above (1747) strongly recommended its introduction in the manufacturing industries of Germany, nothing came either of this or of the investigations which he had made. The project, if project it could in this undeveloped state be called, lay unproductive—quite, in fact, out of sight—till the year 1796; when the still high, if not higher, price of cane sugar caused an apothecary of Berlin, of the name of Achard, to commence practically the manufacture of beet-root sugar. The process introduced by Achard resembled in its main features that of the cane sugar, and it resulted, as may be supposed from this fact, in the giving of a very inferior brown sugar only. There is “nothing new under the sun,” and the proverb appears to be verified in this direction; for we find that Achard drew very special attention, in a letter which he published, on the value of the pulp—one of the residues of the process—as a cattle-feeding material, a material which of late years has been much written about of late as something “quite new.” The efforts of Achard, although not very productive in his own case of valuable practical results, had the effect to draw the attention of the then Republican government of France to the subject, which was to it one of vast interest, chiefly because it was a point of great interest with the nation to do all possible to destroy the monopoly which Great Britain enjoyed in the manufacture of sugar through her colonial possessions. Two small factories, therefore, were established near Paris, at the end of the last century; they, however, languished, and were far more the object of the witty sarcasms and sayings of the lively Parisians than of that interest which a practical people like ourselves take in new things, having a practical object in view. But a master-spirit was about to take the matter up; and, like everything else to which he directed his mind, it was no sooner within his ken and care than a sudden development of its capabilities took place, and one which has been—under circumstances more or less favourable—maintained till now. We refer to Napoleon, and the introduction of his celebrated “Colonial System,” promulgated by decrees at Berlin and Milan, by which he proposed to be independent of everything produced by, or obtainable through, the medium of his hereditary enemy, Great Britain. The question, then, was not whether the beetroot sugar could be made at a cheaper rate, but whether it could be made at all; for the question of price was very easily decided, so far as the consumers of sugar were concerned; for with them it was Hobson’s choice—“this, or none;” for the use of all other sugar was prohibited. Under the fostering care of Napoleon and his colonial system, the trade grew rapidly, and the attention of the most celebrated chemists were closely directed to the perfecting of its details; and so successful were these,



that in due course of time the process was a paying one; the great invention which brought about this happy result being the discovery of M. Fiquier, of the means of rapidly discolouring the syrup by the use of burnt bones or animal charcoal. This was brought out in the year 1812, and by the year 1814 the trade could command a very important character, and in 1820 it may be said to have been permanently established. It will serve little practical purpose—practical, so far as our readers are concerned—to go into the commercial and fiscal history of the manufacture and trade; suffice it to say that, in France alone, the year 1847 saw 303 factories in work, yielding a produce of nearly sixty-two millions of kilos.—or say one hundred-and-fifty millions of pounds avoirdupois; and throughout Continental Europe in the year 1851 the annual produce was no less than 162,000 tons. As regards the agricultural development consequent upon that of the manufacture, take the following fact as most suggestive of the points of interest in which our readers are chiefly concerned. In one of the towns of the department du Nord of France the following inscription is placed upon the gate: "The growth of wheat in this district before the introduction of beetroot sugar was only 122,500 quarters—the number of oxen 700. Since the introduction of the sugar manufacture the growth of wheat has been 146,180 quarters, and the number of oxen 11,500." Which we may thus paraphrase in the words of the well-known farming maxim: "Many roots, much cattle; many cattle, much manure; plenty of manure, abundance of grain." It will be well then, in view of the importance of the agricultural as well as those of its commercial aspects, to glance at the features of so important a cultivation as that of beetroot.

Upon a *prima facie* view of this subject, it may be supposed that the treatment of the soil for the production of a crop of sugar-beet would be exactly similar to that practised in the cultivation of its congeners, the various types of the mangold wurzel, for fattening cattle. It is very true that the same mode of culture will in both cases succeed, so far as to produce large and small crops of roots, according to the degree of labour and expense for manure bestowed upon them. But, independent of this, there are questions respecting the production of the sugar-beet that render it necessary to deviate from the ordinary culture of this class of plants; and we think we cannot do better than to follow the instructions and observations given in the appendix to Sir R. Kane's report, which embodies the mode of cultivation practised on the Continent, where the experience of sixty years has been modified by a series of experiments of highly scientific men, by which the saccharine properties of the beetroot have been greatly increased, and its quality improved.

The soil best suited to this plant is a rich loam, inclining to a clay rather than a sand. No peat soil is fit for it, and it should be free from lumps of clay or stones. The subsoil should be neither a stiff clay (unless subsoiled and drained) nor a sharp gravel; and the soil itself should be deep, well cultivated, and thoroughly pulverized. Land newly reclaimed is unfitted for culture of the sugar-beet. The bulb should be as much covered as possible during its growth, because those portions above ground and exposed to the atmosphere contain no sugar. Perfect cleanliness from weeds is essential to the well-being of the crop; and the benefit of keeping the soil open by frequent hoeing or stirring has been found to be very great.

With regard to manure, it is better that none should be applied *immediately* to the crop; but if rich nitrogenous manures—such as farmyard manure, guano, &c.—are used, they should be applied to the previous crop, so as to be well decomposed and incorporated with the soil; or

it may be laid on in the previous autumn or winter, in which case, by lying in the soil during the winter months, it would undergo the same process. No salt or soluble saline substances should be applied, nor nitrates that would form them. Ashes from wood, peat, coal, &c., may be employed, and bone-earth as well. Lime is always good, and calcareous soils seems to be the best adapted for this and all other roots. Green manuring is always attended with success. In this case the land should be heavily manured in the autumn, and sown at once with rape or some other plant, and ploughed-in in the spring.

We have referred to M. Kœchlin's method of raising crops of beetroot, by which he not only obtains a large produce, but the proportion of sugar or saccharine is greatly increased. Kœchlin's plan is to sow the seed in March on a highly manured seed-bed, sheltered from the frost; and at the latter end of April or the beginning of May to plant them out in rows, twelve or fourteen inches from each other, and ten or twelve inches from plant to plant, by which means he obtains double the weight of small roots, and an immense increase of the per-centage of saccharine matter. We believe that M. Kœchlin has attained the large amount of saccharine he announces (17½ per cent.) both by an attention to the quality of the manure applied, and by the reduction of the size of the root. Strong manuring increases the nitrous elements of the beet, and renders it much more difficult to extract the sugar, whilst the juice is deteriorated in quality.

"The influence of manures," says Mr. Sullivan, "on the quantity of nitrogen is strikingly exemplified in these tables [inserted in his work]. Farmyard manure and guano appear, as a general rule, to increase the quantity of albuminous substances. This is especially remarkable in beet grown upon loamy soils, but is not so apparent in those grown upon heavy clays ....., the effect of the manures being masked by the influence of the soil. The beet grown upon clay soils grows to a large size, and is, as we have remarked already, more watery than that grown upon rich loams. The effect of this is, to lower the per-centage of nitrogen and sugar in the raw beet; but the per-centage in the dried is, to a great degree, uninfluenced by these causes; and accordingly we find that in such cases also, the effect of heavily manuring with farmyard manure and guano is to increase the proportion of nitrogen. Sulphate of ammonia appears to have the same effect; ....., nitrates, on the contrary, do not appear to affect the per-centage of the organic nitrogenous constituents, but are rapidly absorbed by the plants, and will be found in the juice, along with the sugar. The composition of beet grown upon 'red bog' is curious, as showing that beet grown under such circumstances, or indeed in all land abounding in organic matter of a peaty character, appears to extend its energies in the production of cells, containing an exceedingly dilute juice. Saline manures are not proper, because the presence of saline substances in the juice lessens the proportion of crystallizable sugar. Beet grown near the coast, when it is exposed to the saline exhalations of the ocean, is less profitable for sugar-making than that grown more inland. In all cases, autumnal manuring is superior in effect to spring manuring, whether it be for beetroot, turnips, or any other crop."

M. Blanquet, as quoted by Dr. Sullivan, states that "beetroot grown under such circumstances, although they may yield sugar in abundance in the commencement of the season, are worked with difficulty after being kept a short time. .... We think we are justified in saying no good farmer ought to manure his land with fresh manure in spring, whether his object be to sell his roots

for the manufacture of sugar, or employ them for feeding cattle."

With regard to the cost of cultivating the sugar-beet, the entire process is so similar to that followed for the mangold wurzel, and this is so familiar to almost every English farmer, that it is scarcely necessary to refer to the particulars. Mr. Sullivan took great pains to ascertain this point, both as relating to Ireland and to England; and he found that, with one exception (that of the estimate of Lord Talbot de Malahide, which was £10 ls. 8d. per acre, *after* deducting £2 for the tops\*), the amount in the two countries is nearly the same—say, from £5 10s. to £7 10s., exclusive of rent and taxes. The process followed by Köschlin—that of planting out by hand—would be much more expensive; but the large increase of the weight of roots and their superiority in point of the proportion of saccharine matter would far more than make amends for the excess. Another advantage would accrue from that method in the earlier maturity of the crop, from having the plants ready to be set out at the time when on the common plan the seed is generally being sown, by which the young plants have the full benefit of the spring showers, and become strong before the dry season comes in. The advantage also of having the crop matured at an early period of the season enables the manufacturers to commence operations earlier, and gives the grower the return for his outlay long before the roots raised in the ordinary method are ready. The planting-out of the young plants can be managed by women and young people, provided the latter have a careful and competent person to superintend them.

The cartage of the beetroots to the factory will not be much more expensive than the ordinary carting to the homestead, and it can be performed when the other work of the farm is slack. Mr. Sullivan obtained considerable information on this part of the subject; and from the opinion of experienced men both in Ireland and England he came to the conclusion that 6d. per ton per mile was a full average expense attending the delivery; or, if the factory is five miles distant, at 2s. 6d. per ton. The entire expense therefore of supplying beet root at the factory, if five miles distant, would be from 8s. to 11s. per ton, according to the amount of the produce.

The tops or foliage form an important item in the value of the crop of beetroot. If consumed by cattle on the spot, it is estimated at about 20s. per acre on a crop of 20 tons, or 1s. per ton. In France and other Continental countries the tops are preserved in pits like those for potatoes, salt being sprinkled plentifully over the layers as they are deposited. In this way they will keep any length of time, and are eagerly devoured by cattle. It is said that cows fed on them give a large increase of milk. There are few English farmers, however, who would take the trouble to preserve them in this way at the time when so many other operations of the farm are pressing upon their attention. Otherwise, the salt applied to them is certainly useful, as well as necessary, and promotes the health of the animals that feed on the tops; but salt can be given to them in other forms; and the difference in the value of preserved tops and those consumed on the field, or ploughed in as manure, is so small as not to form an object of attention. The raw leaves are estimated at 3s. 4d. per ton; and as a portion of the bulb (that part not covered by the soil) is cut off with the foliage because it contains no sugar, the weight will be greater per ton of roots than from the mangold wurzel, according, however, to the quality of the soil and the

species of the beet, some having a larger amount of foliage than others.

With regard to the comparative profit of cultivating beet against wheat, a very slight statement will show that on an average of years the former is superior to the latter as a remunerating crop. In his estimate on this head, Mr. Sullivan reckons that of beet at 15 tons per acre and 15s. per ton, and 4½ tons of tops at 7s. 6d. per ton, making together £12 18s. 10d., from which he deducts £5 6s. for expenses of cultivation, leaving a profit of £7 12s. 10d. The wheat he estimates at 6½ barrels of 20 stones each, at 22s. per barrel. This is equal to 30 bushels at 37s. per quarter, or £7 3s., to which he adds 1½ ton of straw at 15s., or 18s. 9d., giving an aggregate of £8 1s., from which is deducted expenses £2 7s., leaving a profit balance of £5 14s. 9d. Deducting this again from the profit on the beet of £7 12s. 10d., it gives a balance in favour of the latter of £1 18s. 1d.

This estimate is evidently too low in every respect for the present time and for England, and we shall therefore take the beetroot crop to be 15 tons per acre at 18s. per ton, and the wheat at 3½ qrs. at 50s. per qr., which is probably what the average price will be in future. Thus,

	£	s.	d.
15 tons of beetroot at 18s. per ton	...	...	13 10 0
4½ tons of tops at 7s. 6d. per ton	...	...	1 13 9
			<hr/>
			15 3 9
From which deduct expenses	...	...	5 6 0
			<hr/>
Balance for rent, taxes, and profit	...	...	9 17 9
			<hr/>
3½ qrs. wheat at 50s.	...	...	8 15 0
1½ ton of straw at 15s.	...	...	0 18 9
			<hr/>
			9 13 9
Expenses	...	...	2 7 0
			<hr/>
Balance for rent, taxes, and profit	...	...	7 6 9
			<hr/>
This leaves a balance in favour of beet	...	...	2 11 0

and when we take into the account that wheat requires a whole twelve month to arrive at maturity, and frequently a previous fallow which adds the expense of another year's tillage without an additional crop, there will be no question of which is the most profitable to the grower. But this consideration is not regarded by the continental farmers, as they grow beet and wheat alternately, and find the root crop an excellent preparation for the wheat, especially when the tops of the beet are ploughed in as manure, which is sometimes practised. The beet, too, arrives at maturity in four or five months, and, if properly tilled, so as to give it a deep seed-bed well comminuted, is less liable to the casualties of the season than either cereal or turnip crops. It will be understood that the seeds or plants should be cultivated on the flat, the object being to obtain *numbers* rather than *size* of roots: ridges would require much more space, and would frustrate rather than promote that object.

But we have stated the crops of beet very low at 16 tons per acre. If we suppose that the plants will be planted out, say the rows at 16 inches and the plants in them at 12 inches apart, there being 43,560 square feet in the acre, and the four inches in the rows taking off one-sixth, there will be 36,300 plants on the acre, supposing again there is a full crop. If, again, we assume that the average weight of roots is 3lbs. each the weight of the crop will be 36,300 × 3 = 108,400lbs., or nearly 48½ tons. Or if we estimate the average weight at only 2lbs. the return will be one-third less, or 32.2-5th tons. This calculation will show the great importance of

\* It ought to be stated that in this case the produce was 50 tons per acre, and the land was manured with 45 tons of stable-yard dung.

paying the utmost attention to the planting of the seed or the roots; the latter plan being by far the best and most certain plan of putting them in, and the extra crop being amply sufficient to cover the extra expense of planting.

Even the average of 15 tons per acre, which an English farmer may safely calculate upon, is much more than is obtained on the continent. In France the official statistics gave the average of the whole country at 10·89; but M. Boussingault makes it for several years 10·50, and M. Ruville, for seven years, only 7·16. This latter, however, was taken as the average of Lorraine and Champagne, the most sterile provinces in France. In Northern Germany the average is 10·50 and in Southern Germany 9·30, according to the report of the Prussian Government in 1847. The following table, however, by a French statist, M. Moreau Jonnés, gives a more liberal view of the product in France:—

Average produce of sugar-beet in various Departments.			
Nord .....	tons 16·76	Rhone .....	tons 11·29
Finisterre .....	16·52	Hérault .....	10·69
Bas Rhin .....	13·81	Aisne .....	9·42
Pas de Calais .....	12·89	Haut Rhin .....	8·66
Seine .....	12·69	Cher (Boussingault) ...	15·60
Ardennes .....	11·79		

We come now to the question of the probability that the introduction of this manufacture into England will be attended with advantage, not only to the agriculture of the country, but to the manufacturer as well, because as purely philanthropic motives are out of the question, that of profit to the latter party embraces the whole object in view. It is, therefore, of the first importance to weigh well the circumstances by which the question is surrounded, in their bearing upon the subject of profit and loss to the manufacturer.

In an economic point of view manufacturers are divided into two classes—those which are employed on raw materials of foreign production, and those employed on articles of native produce. In the former we may reckon the cotton and silk, in the latter the linen, woollen, and many other materials, both textile and otherwise. It requires no argument to prove that the latter must, as a general principle, confer a much greater benefit on a country than the former, provided the raw material can be produced as good and as cheaply as it could abroad, and the manufactured article itself can also be produced equally good and cheap as it could be supplied by the foreigner. With regard to the raw material in the case of beet-sugar, enough has been shown to prove that English agriculture by its advanced position, its intimate knowledge of the peculiar cultivation it involves, the adaptation of the soil and climate, is perfectly adapted to supply it of the best quality, and at a price to meet the requirements of the manufacturer, without throwing the land out of course or in any other way interfering with the regular routine of the farm. We have, therefore, only further to consider the case of the manufacturer in regard to the competition he will have to encounter and his power to produce an equally good article at a price to meet it.

It is well known that hitherto our supply of sugar has been obtained from the West and East Indies, the Mauritius, &c. The first of these includes a large amount of *slave-grown sugar*, which our legislature most iniquitously allows to be admitted at the same duty as that from our own colonies. This is a glaring dereliction from all the moral principles hitherto maintained on the subject since 1832, and which ought to have been specially maintained as against Spain, who has cost this country at least thirty millions sterling to prevent her carrying on the slave trade, for which she was paid a large equivalent in money. This, it is true, has no further to do with the question before us than that it increases the amount of competition which the manufacture of beet sugar will have to meet. In

other respects, we will never omit a favourable opportunity of exposing the injustice, and, we will add, impolicy of thus pandering to the base and inhuman practice of slavery and the slave trade in foreign countries, after abolishing it in our own colonies. The claim that Spain had on England, not of sympathy and encouragement, but of indignation and disgust at her perfidy and meanness in accepting a large sum to give up the trade, and then, so far from fulfilling her engagement, continuing the inhuman practice with increased activity up to the present moment, condemns the Spanish Government to everlasting infamy and contempt, and our own Government is deeply involved in the same condemnation. We shall say no more, except that we will never omit to express our sentiments on this national crime whenever our subject naturally leads to it.

The competition then, that the manufacture of beet sugar will have to encounter, is chiefly that of the British and foreign West Indian colonies; the question, therefore, to be solved is whether the beet sugar is able to sustain this competition both in respect to quality and expense of cultivation as an indigenous against a foreign production?

We should be justified in saying that this question has already been fully answered by the progress of the manufacture on the continent, and especially in France. In this latter country, so far from being compelled to sustain it by a protective duty on foreign-made sugar, the Government gradually transferred the protection from the beet to the colonial sugar, by removing it from the latter and imposing an equal amount (5 francs per cwt.) on the former; and so far has this change been from destroying or injuring the manufacture that it has largely increased, say from 51,110 tons in 1847, to 275,000 tons in 1866, and 215,000 tons in 1867 and 1868; and the same increase has taken place in other countries, more particularly Russia. We have already referred to the above statistics, and if we repeat them it is with the view of showing that the success which has attended the manufacture in France with all the aids of science and skill has had a reflex action upon the West India planters, who have been compelled by the force of circumstances to adopt similar methods of extracting the juice from the cane and reducing it to crystallised sugar; but that with these additional aids and a greater spirit of enterprise, the natural effect of competition, the indigenous article is in the ascendant. The reason of this is obvious: there is the freight and other expenses of transit, the brokerage, the leakage on the passage (15 per cent. on sugar and 20 per cent. on molasses), with a variety of other drawbacks from which the beet sugar is wholly exempt. In the West Indies the canes must be cut and operated upon without a day's delay, as soon as they are ripe. If not cut then, the juice hardens and it is difficult to be extracted; and if the juice is not instantly boiled down it is liable to ferment and turn acid, which prevents the proper crystallisation, and thus injures the quality of the product. This circumstance renders it necessary to employ a great number of hands, at extra wages, rendering the manufacture exceedingly expensive compared with what it was during the existence of slavery, although the men work harder. On the contrary, the beet-root can be stored, and by that means the manufacture may be spread over at least four or five months, and if *dried*, as is practised on the continent, can be continued throughout the year if the quantity of beet is large enough. But if the evidence given by the West India planters before the Committee of the House of Commons in 1847 is to be depended on, the average expense of all the British colonies in the manufacture of cane sugar (Muscovado), was 19s. 2d. per cwt., classing them as follows:

	a.	d.
Jamaica ... ..	22	7
Guyana... ..	25	0
Trinidad ... ..	25	0
Barbadoes ... ..	25	4½
Tobago ... ..	17	0
Antigua ... ..	15	4½
St. Kitts ... ..	16	2
Grenada ... ..	16	2
St. Vincent ... ..	19	2
Average ... ..	19	2

And this account was confirmed by that in p. 17, giving the statement of the whole crop of the West India Islands in the year 1847, which involved an aggregate loss of £170,000. No doubt, in most of the islands, the planters have both lessened the expenses and increased the product of sugar by the adoption, so far as was useful as adapted to the cane, of the mechanical and other inventions of the French beet-sugar manufacturers; but, owing to the hard, woody nature of the cane, there is an insuperable difficulty in applying an equal and continuous pressure in the extraction of the juice; so that, although the cane contains eighteen per cent. of saccharine matter, not more than seven or eight per cent. is obtained, which is about the quantity obtained by the beet-sugar manufacturers from that root. There is also no difficulty in the extraction of the latter, its soft, watery, and pulpy nature allowing it to yield to an equal pressure of the hydraulic press. The expense of labour in the case of beet-sugar is estimated at £10 10s. per ton, exclusive of rent, interest of money, insurance, and duty.

Nor is it the least advantage in favour of the beet-sugar manufacturers that there is no delay in the realisation of their returns. They may receive the roots in the morning; and by the next day the sugar may be ready for the market, if necessary; for such is the improvement in the processes, that what formerly occupied many days can now be effected in one day. We have seen loaf-sugar, the product of the factory at Mount Melick, in Ireland, which was made from the juice that had been pressed from the root the same day. The separation of the molasses from the crystallised sugar is effected in a few minutes by the centrifugal machine. The black, semi-fluid mass is put into this machine, which is then made to perform seven hundred revolutions per minute.

By this rapid movement the mass is thrown against the wire-gauze with which the machine is lined, with such violence that the molasses are forced through it, and leave the perfectly white sugar in the machine. We have seen this effected in less than five minutes. Another improvement is the introduction of a current of atmospheric air into the evaporating-pans, by which evaporation is artificially kept up at a low temperature, and greatly accelerated; whilst, as a collateral effect of the same process, the sugar is divested of the flavour of the root, which previously was the principal objection to it.

We have referred to these improvements in the manufacture without any intention of going into the general processes, but to show the increased facilities for sugar-making that have been discovered, and that those who may embark in the manufacture in this country may have the full benefit of these discoveries, without the trouble and expense attending the experiments by which they were perfected. Vast sums have been expended, and years of reflection and experiment employed by scientific men, in bringing such improvements to bear, of which the new-comers may at once avail themselves. All the processes in this manufacture are mechanical, nor is there anything relating to it but what any person of common understanding may readily make himself master of.

It now, however, remains for the intending growers of the beet-root in different parts of the country to make their experiments in regard to the applicability of soil and climate for the production of a sufficiently sacchariferous root, which, in fact, is a vital question. At the same time, deep tillage—subsoiling if possible—thorough-draining, and a complete pulverisation of the soil are indispensable operations for the production of a first-rate crop of sugar-beet, as they are also in the case of all other root-crops. Small roots (under three pounds) rather than large, numbers against individual weight, must be the aim of the growers; and, by extra care in planting, instead of sowing, it is certain that not only a more valuable, but as heavy, a crop may be obtained, as is done on the Continent. Following these rules, which are nothing new, though too much neglected, in the United Kingdom, there is no reason whatever for supposing that the soil, climate, and other natural phenomena are not as favourable to this manufacture with us as those of any part of the Continent.

## THE POTATO CROP—ITS PRESENT STATE.

BY A PRACTICAL FARMER.

Now that this unexampled early harvest is pretty nigh secured, the interest of the country is mainly centred in the potato crop, and not without reason. I am very reluctant to sound an alarm, but truly our somewhat promising crops are just now in a peculiarly anomalous condition. The early plantings obtained the advantage of the fine growing season we had from March and April up to about the middle of May, when the drought began to tell upon the crops; a few hopeful showers fell, but from the 30th of May to the beginning of August we were without scarcely a drop, and the months of June and July probably the hottest months ever known in the country. Of course, nearly all the potato crops ceased to grow, or progressed very slowly, and the latter planted crops were badly moulded up, owing to the cloddy state of the soil; this still farther retarded their progress, letting the drought into the very tubers. Everything was

done that could be thought of, to promote their growth, but to no purpose, and many crops succumbed on the heavy loams and clayey soils; so much so, that the rows could not be discerned on passing, and upon every crop throughout the country, at least every crop with which I am acquainted or have heard of, the drought and heat have had the disastrous effect of prematurely maturing the tubers, and particularly in what few tubers had made material progress in the late planted crops. The late beautiful rains have caused them to put forth abundance of fibres, from which young potatoes are growing most luxuriantly, and the haulm has the appearance of a first spring growth, growing rapidly and luxuriantly. The early planted crops were never more promising up to the middle of June, when they also nearly stopped growing. Up to that time they had made excellent progress, and many fine tubers are now to be found; but unfortunately

the same premature maturity took place very extensively, and the late fine rains are now producing the like disastrous effects as upon the late plantings. I have this day (August 19th) spent some time in examining various crops of both early and late plantings, and all alike, if not in equal degree, have commenced a second vigorous growth, and young tubers from the size of a pea to that of a large walnut or even an egg are to be found everywhere, and from all varieties of potatoes; at least I found it so in those I examined, i. e., Regents, Flukes, Rocks, and Kerry blues. The haulm in almost all cases presents the most healthy and prosperous growth. In one or two fields that I have seen where the haulm has partially decayed the tubers are in a much better state, and are good in quality. Our potato growers are all in fear and consternation; the expensive growth of this season is unexamined; the cost of seed, the culture, manurings, and planting amount to nearly £20 per acre (a grower this very morning assured me his cost was fully that), and then to have a failure is very trying. There are many speculators in the market, and all are looking out for the best early-planted crops, for which they are giving high prices, providing they are fairly matured in haulm and tuber, and can be harvested immediately; £30 per acre appears to be the current price. The great fear is that this second growth will greatly injure, if not totally destroy the tubers of this summer growth, in like manner as the original set or planted tuber. This is one of my fears; and I feel assured that if they are not destroyed, they will be greatly deteriorated in quality, and much reduced in weight. I am a grower of about eighty acres this season, and my anxieties have been much aroused by my examination to-day. I have conversed with several growers, and no one can suggest a desirable course. Some are trying to harvest their crop in all its full luxuriance. This can only be locally and partially done. Others are cutting off, or pulling up the haulm. This may be right in some early planted and matured crops, but woeful waste in the late ones. It may retard the growth, but it will not stop it, any more than the tuber first planted in the spring. The tubers are, in fact, as planted, and are growing, and will no doubt put forth fresh haulm ultimately, or decay in the ground. Others are disposed to let all alone, and await the result. I am inclined to the latter course; in fact they won't keep in grave if they are taken up, and all cannot go into consumption at once. For the main crop there is no alternative; growers must wait patiently. Better decay in the field than spoil in the grave. Each man must judge for himself. If a portion can be harvested without great risk, it may be desirable to take them up. Undoubtedly, the more young tubers produced, and the larger growth they attain, must be at the loss of the present crop. It is a very trying and perplexing difficulty. I trust that our agricultural and other papers will take up the case, and that all the information that can be gathered upon a matter so vitally important, not only to the grower, but to the consuming public, will be at once diffused throughout the country, so that something may be done either to mitigate the evil or suggest what should be done. I hope men experienced in such matters will at once take the subject up, and give us their views and suggestions. It is unquestionably a matter of vast importance to our country, and I wonder it has not been brought more pointedly or earlier before the public. I abhor panics, and fear anything leading thereto; but everything that can possibly be done to allay fears, ought to be openly discussed, and the conclusions promptly acted upon. There is danger in the potato crop—great danger! How can it be averted or provided against? It cannot be otherwise than a partial failure, as it now stands. The drought and second growth of the crop determines that. The great

question is the best manner of securing the imperfect crops we have. My object in the main is to engage all parties to aid in this important question, as every day adds to the country's difficulties as respects food for the population. We need the collective wisdom of every one versed in potato management. At all events, we have a good wheat crop; plenty of bread. That's one of our greatest and best blessings; but here we must, with trembling, stop. We have no other substantial resources, or indeed average sources of food for the substance of our people. Our spring corn and pulse crops are bad; our root and green crops for cattle and sheep are bad; our supply of cattle and sheep for meat is very short and deficient in condition, and no winter food to fatten them; our markets are partially closed against the introduction of foreign stock; meat has considerably risen in price; our potato crop is in a most precarious state, and at best bad; our garden produce is eaten by fly, &c., and very bad. I have before me the testimony of 198 competent judges of the state of the potato crop in July last throughout England and Scotland: 93 give an average crop, 101 under average, and 4 over average. I have also the testimony of 81 competent judges throughout Ireland, just published: 39 speak favourably, 42 speak unfavourably, and scarcely any of the returns allude to this second destructive growth; indeed, it had scarcely been developed when the 198 returns were sent in, but one or two of the Irish returns allude slightly to it. I have not seen returns from the Continent, but I have no doubt that all crops in a similar latitude to this country are also affected. My hope in penning this paper is to excite universal attention to a subject so important.

#### FODDER.

The Rev. Mr. Vicary, of Wexford, writes as follows to the *Times*:

In consequence of the failure of the hay crop, owing to the unprecedented season we are passing through, the burnt-up state of the pasture, and the light yield that the mangold and turnip must give this year, it becomes a question of much importance to know how the agriculturist may be able to supplement his slender stock of fodder.

There has been a plentiful supply of rain, and in a month or six weeks the pastures may be expected to supply some food, but in very dry lands the herbage can hardly do more than re-establish itself.

In these circumstances it should be extensively known that we possess in our woods and hedges a food of which all cattle are extremely fond, upon which they fatten and flourish wonderfully, and the gathering of which forms one of the regular crops of the northern countries of Europe. I refer to the common ash tree, *Fraxinus excelsior*, of our woods and coppices.

In Sweden, Finland and Denmark, before the advent of cold weather, which impairs the succulence of the leaves, every frond and leaf is collected from the boughs of the ash, of which some are immediately used as food for the cow, horse, and pig, and of which all eat with avidity. The remainder of the leaves—the main crop—is placed in empty houses, a little salt being scattered among them, or placed upon slightly elevated stands in the rick-yard, using also the stipulated quantity of salt, which are then securely thatched over as security from the rain. Thus treated, the ash fodder lasts through the winter and spring, and at this period, if deemed requisite, is boiled or steamed with the addition of some bran.

Every farm may not have its ash coppice, but those who possess this tree should know, under present circumstances, its valuable properties, and proceed at once to utilize it for present and future use.

Thousands of tons of this esculent could be collected through the country, and the present time, when the sap is vigorous in the leaf, would be desirable for harvesting the crop; but it can be used as required, care being taken to collect the main crop before frosts or cold winds have set in.

## LEICESTERSHIRE FARMING.

Kirby Mallory was the earliest home of pure Short-horns in the county. Mr. Wetherell, a banker in the North, came there in 1813, and sold off in 1820. Jobbing's Rockingham (560), Denton (198), North Star (460), a son of Comet's (155), and Robert Colling's Major (398), were his chief bulls. Mr. Smith of Dishley, a joint owner with the Hon. J. B. Simpson of the bull Lancaster (360), was another early improver; and so were Mr. White of Cotes and Mr. Raine, who both used Kirby Mallory bulls. In later days, Lord Berners kept a large herd at Keythorpe Hall, and won several prizes—more especially with Hassan (9,193)—at the county shows. His lordship's herd was derived principally from the Marquis of Exeter's, Mr. Dodd's, and Mr. Dudding's blood; and was sold off in the August of 1852, when Mr. Packe, M.P., purchased largely. Earl Howe has stood for nearly 30 years on a rare milking tribe—the Bright Eyes—the ancestress of which (Belle) he purchased from Mr. Moore of Appleby. His lordship has had several other cows and heifers from Rose of Cotham, Wilkinson of Lenton, Parkinson of Leyfields, Crosland of Burbage, and other well-known herds. Second Duke of Oxford (9,046) was bought at the Kirklevington sale; and Lord Exeter's Simon (5,135), Mr. Parkinson's Vanguard (6,633) and his Duke of St. Albans (6,944)—both of the Gwynne tribe—Col. Kingscote's Guardaman (14,656), Lord Feversham's Duncombe (11,402), and Mr. Langston's Lord of the Herd (20,204), have all been at Gopsall, and left many useful bulls among the tenantry.

Mr. Stokes of Kington's large herd, which was principally descended from Kirby Mallory and Lenton tribes, was sold off a few years before Lord Berners', and much of it was taken out of the county. Mr. J. S. Crosland, a large local winner with his Selim (8,545), Salisbury (10,779), and Mazeppa (10,520) stock, had a good herd at Burbage, near Hinckley. It was also at the sales of Mr. George Townshend, in this neighbourhood, that the Duke of Devonshire, Mr. David McIntosh, Mr. Charles Howard, and Mr. R. W. Saunders laid the foundation of their Princess, Gwynne, and Blanche tribes. General Sale (8,099) and Old Rowley (15,020) were his most celebrated Princess bulls; and his "Old Leicester breed of cart-horses," headed by Iron Duke, brought him not a few show honours.

Mr. Bosworth of Dishley's Red Cross Knight (20,637), Stanley, and Ermine—all winners at the Sparkenhoe Show, where The Knight took the prize for the best Shorthorn in the yard—were by bulls bred by the late Mr. Packe, M.P. Messrs. W. and H. Gill of Burton-on-the-Wolds, Mr. E. Power of Barleston Manor, Mr. Shipman of Waltham, and Mr. Snodin of Stonesby have all "gone in for pedigree." Mr. Herrick of Beaumanor is seldom without a well-bred bull, and Thorndale Troutbeck (22,307) has been in residence; while Col. Arthur has introduced Young Friar (19,797) and St. Patrick (20,776); and Mr. Ivens—one of the very few men who have bred Southdowns in the county—takes his stand on Earl of Lancaster (21,648).

The late Mr. Packe, M.P., began to form his herd about 1851, chiefly from Lord Berners' stock; and by using good bulls, his steers were soon highly spoken of by the butchers, and produced a paying bull-calf trade. In 1860 some of the inferior sorts were drafted out; and new blood was used—to wit, Mr. Wetherell's Stanley

(17036), Mr. Carr's Don Windsor (19585), and Count of Windsor (21498). At Christmas, 1866, Mr. Packe was first in the old class at Smithfield with a white ox; and after his death the herd was sold. It mustered 84 head, of which 34 were two-year-old, yearling, and calf steers, with good pedigrees on both sides. The cows were mostly descended from Lord Exeter's, Mr. Maynard's, Mr. Torr's, Rev. T. Cator's, Mr. Marjoribanks', Mr. D. Smith's, Sir C. Knightley's, Mr. Surtees', Sir C. Lambert's, Mr. Cruickshank's, and Col. Towneley's herds; and the Waraby bull England's Glory (23889) was in residence. The 84 head averaged £37 11s. 10d.; and the highest prices were, for cows, &c.: Wharfedale Butterfly (Col. Towneley) 110 gs., Auricula (Mr. Macintosh) 71 gs.; bulls, Towneley Butterfly (Col. Towneley) 130 gs.; and Windsor Duke (Mr. Jordan) 110 gs.; while the capital three-year-old steer Fortune made 52½ gs.

Mr. E. H. Cheney, of Gaddesby Hall, has only begun very recently with pedigreed cattle, and previously bought cattle for feeding from Ireland and the fairs all round. At the last Burghley sale, in 1867, he first "smelt blood," and bought, with his friend Mr. Angerstein, M.P., two or three heifers apiece. At Havering Park he went in for General Napier, of the Princess blood, at 80 gs., which has grown into a very fine bull; and during the following fortnight he bought five at Messrs. Bland and Barber's, including Bonquet (66 gs.), of the Foggathorpe, and Bright Eyes 2nd (61 gs.), of the Wild Eyes tribe. At Mr. Sheldon's, the same autumn, he bought Lady Blanche (56 gs.), and also added to his store Princess Helena (75 gs.) and Autumn Rose (66 gs.), of the Chriap's Duchess line, from Mr. Brampton's. Then followed a few private purchases, including Maynard's Rosamond, which had been sold at Burghley, and another of the Foggathorpe tribe. General Napier satisfied him so well, that at Mr. Adkins's last sale he gave the top price (345 gs.) for Princess, of the same blood, and followed it up with 145 gs., at Rowfant, for a daughter of Fancy. At Mr. Clayden's he also gave 120 gs. for Brilliant, of the Blanche blood; and in fact, for some time past, Mr. Strafford's best sales have seldom lacked his commissioner.

All these efforts to introduce and keep good blood in the county have hardly been met with corresponding spirit, and there is, we fear, too much truth in a complaint, which we heard more than once, that "a half-crown bull flourishes while a crown bull starves." Black noses are plentiful enough; but, taking the dairy cows all round, they are superior in their looks to the Cheshire ones, as far as breeding goes. Some of the large dairy-farmers get rid of the calves they do not want, at £1 a-head when a week old; while others keep them and run them over the seeds. The Duke of Rutland's property is not cheese-land; but the farmers make butter and keep their calves till two off, and then sell them at Grantham and Melton Mowbray to be finished off. Those who don't mow, and have no plough land, are either obliged to purchase beasts at the latter end of the year, and send them out for the winter to straw with cake and turnips in Lincolnshire, or trust to buying what they require in the spring of the year. Others have no hay, but only straw and turnips. Barley-meal is very much used, and so is palm-nut-meal, which is mixed with chaff for the beasts and chaff and corn for the horses. It has also been found very useful in keeping sheep up to the mark in the

winter; but, like the beasts, they "look at it twice," and never seem to take to it with hearty good will. Bean-meal and oats are a great article of consumption in some dairy herds; but oil-cake is rather eschewed, as it is thought to injure the pastures for cheese-making. Farmers like to have their dairy-cows and bullocks tied up by December, and like it all the better if they get their notice to quit by a fall of snow, which sweetens the ground and lets hounds run.

A constant draft goes on in the dairy-farmers' byres, and many of the heifers are dried off and stall-fed for two or three months before going to the Leicester, Derby, or Fazeley markets, where "a neat cutting one," as at New-castle, is always sought after. On the Hinckley and Bosworth side these dairy drafts pretty nearly supply the wants of the feeders, and the drape cows which are fed off round Melton Mowbray nearly all go to London. Towards Loughborough the farmers generally make up their winter lots from the Derbyshire dairies, and West Highlanders from Brough Hill, Yorkshire cattle from Derby and Northampton fairs, and "Lincoln reds" from over the Ouse help to swell the ranks.

We found the union of beef and mutton admirably exemplified at Mr. Everard's, of Narboro' Woods, who has one of the largest milk dairies in the county, and very spacious and excellent outbuildings. He can tie up one hundred cows, and has open yard room for forty store beasts as well. From seventy to eighty cows are always in milk, and the rest are either feeding off or coming in. Mr. Everard picks up most of his cows and heifers in-calf about home, and the rest in Leicester market. His general plan is to keep them for one season, and dry them off for two months, during which they are prepared for the butcher with light corn, flour, barley, cake, or oats for variety, along with barley-straw, cabbage, pulped turnips, and mangolds. Palm-nut meal was once in very general use, but it has been discontinued. Great stress is laid on brewery grains, which not only force the milk-veins, but produce beef as well. These grains are carted about five miles from Leicester, and are then stored in six large pits, nearly nine feet deep, and capable of holding from five to six hundred bushels a-piece. A layer of spent hops is put over them, and they are hermetically sealed with layers of sand and clay. By such management, they will easily keep for twelve or fourteen months. They are given to the cows when the grass is done, or fails in summer; and the usual allowance to each cow is a bushel at twice. As much as 600 bushels of them, 10 cwts. of cake, and 10 qrs. of corn have been consumed weekly *inter alia* by the sheep, cows, pigs, and horses on the farm. Mr. Everard has about 450 acres in hand, through all of which he has put the plough at one time or another. He dresses his pastures for the dairy cows with half-inch bones, and uses all his liquid manure on the mowing ground. His practice is to mow clover, instead of vetches, and he devotes about twenty acres to it. Rape and mustard are not in his rotation, as the land is too heavy to tread with sheep; and he relies most on his drumhead cabbage, which does full justice to its very heavy manuring. His flock consists of about a hundred ewes, of which sixty are put to the Leicester, and forty to the "Shrop." The hogs begin with cake in October; and when no roots are to be got, they have brewery-grains, and ground corn as well; and he sold out his fourteen-month cross-breds, one year, at 58s. 8d. each.

Stilton and flat or new milk cheese form a great staple of Leicestershire farm produce. The manufacture of the former is confined to a small district round Melton Mowbray, and a portion of Top Leicestershire; while that of the latter is spread far and wide, and more especially over the south-west side of the county, with

Hinckley, Bosworth, Ratcliffe, and Cadeby as its strongholds. The balance of evidence is in favour of the belief that this part does not make so much cheese as it did formerly, and that the high prices of wool and meat have induced farmers to graze more. Sheep districts suit cheese-making better than the rich bullock land, as the latter has too much fatty matter in it, and the cheese will consequently not unite. The attempt to salt tainted beef would not be one whit more discouraging than to try for truth of texture and colour in cheese, where too much artificial manure has been used. In truth, it would be dear at twopence a-pound, and the factors would throw it up. Again, if cows are put upon clover, it pluffs the cheese, and makes it quite unsound. A little bonedust or compost may answer upon the pastures; but some dairies have been quite spoilt by over-improving grass land, and there is much truth in the Arley Hall lyric:—

"A bull fed on rushes, depend upon that,  
Is worth more to the dairy than two that are fat."

We find from the records of the Leicester October Fair of 1807, that only 200 tons were pitched, and that it was "sold from 58s. to 60s. per cwt. plain and 62s. to 63s. best coloured." The general average was 60s. for new milk cheese, and the county was then considered quite equal to 1,500 tons a-year. At the last May fair Mr. James Cooper, of Hoo Hills, near Market Bosworth, and Mr. Charles Clarke, of Lindley, near Hinckley, took the highest price—88s. per cwt. Other dairies made 88s. and 84s., and several 70s. to 80s. For a long time the price ranged from 60s. to 65s., but now it pretty nearly touches 80s. for "all useful things." Skim milk cheese has been made in the Stilton dairies, but the American Factory cheeses, which are 90lbs. weight, and very similar to Cheddar, have nearly beaten it out of the market and interfered seriously with new milk cheese up to 75 shillings. About four of these cheeses go to the hundred-weight, which is 112lbs. in Warwickshire and 120lbs. in Derbyshire and Leicestershire. The cheese of the year is divided into two weighs. The first, which is pitched at Leicester on or about May 12th, seldom exceeds 500 tons, and includes the produce of the dairies from about August to the end of the season. The second weigh, which is superior from the fact that it has no fodder cheese in it, and represents the make from May morning up to August 27th, comes out to the amount of 1,000 to 1,200 tons (not reckoning in Stilton) at the Leicester October fair. Of course, the Birmingham and Leicester factors have been busy with their tasters long before them; and hence a great weight of cheese is never pitched in the fair at all. Several Lincolnshire and Norfolk dealers come to Leicester, and so do some of the Scottish ones, and London and the Continent have their full share. The tastes of the different counties vary on one great point. For instance, Yorkshire, Derbyshire, and Scotland like their cheese coloured; and Norfolk, Essex, and Suffolk prefer it plain.

Mr. Nuttall, of South Croxton, generally pitches about 12 tons, two-thirds of it in October and a third in May. His farm, which his late father entered upon in 1825, contains 300 acres in grass and 130 under plough. It is rather cold land and not a kindly soil for roots, and 20 tons per acre of yellow globe mangold is a satisfactory crop. About ten acres of it are grown, eight are kept for swedes and common turnips, and two for drumhead cabbage. These crops have no stint of good farmyard manure, in addition to top-dressing and phosphates, as the cattle eat all the corn, except wheat, grown on the farm; and 60 tons of cake as well. The pastures are simply sweetened with a little bone-dust.

Brewers' grains are used for the cows, and of bean-



meal there is no stint during cheese-time. Mr. Nuttall brings up a few queys calves each year, and buys in his cows or heifers so as to calve down on the grass. They are kept out night and day till Christmas, and then tied up entirely until the middle of April. From Old May-day till the end of June the eighty cows will be making seven full-milk cheeses, or 240lbs. weight per day. The cheeses are made up morning and evening, and the family likeness is always maintained of five inches high by seventeen across. The principal features of the dairy are the five stone, and the two lever presses, and the cheese must be in the press, and in salt for a full week. All the cream bowls are of Penrhyn slate, which is considered much sweeter for the purpose than lead. About one pound of whey butter per week is made from each cow, and 240 gallons of whey are sometimes sent daily through the pipes to a large underground cistern into the yard. It is pumped out of this for the pigs, of which about seventy are fed off each year. Mr. Nuttall's practice is to buy them, at an average, for £3, or about 10s. a-score, and to keep them under high pork pressure for four or five months.

The inhabitants of Stilton refer to Pope, and "A Tour through the whole Island of Great Britain, written by a gentleman," as far back as 1725, to prove that they were the earliest makers of our "English Parmesan." In Leicestershire the honour of being its fountress was awarded by some to a Mrs. Pick, of Withcote, and by others to a Mrs. Orton, of Great Dalby. The supporters of the first good dame, who died, we believe, about twenty-four years since, *etat* ninety-six, maintain that it was always known by the name of "Withcote cheese," and that the Huntingdonshire town had never any part or lot in the matter, and merely substituted a better cheese for their own "old original," and bestowed on it their name. Be it Stilton or be it Withcote, the two Dalbys, Skeffington, Tugby, Tilton, Kilby Thorpe, Twyford, and Asfordby are among its great Leicestershire strongholds. It requires so much "fadding," that the largest dairies do not care to make it. Sweet-milk cheese makers are wont to compare the process to having a troop of infants at nurse. There are seldom more than two dozen cows in a Stilton dairy; but Mrs. Emalie, of Asfordby, has nearly forty on ninety acres round home, and at Grimston, and turns out about sixty dozen cheeses of about 15lbs. each in a season. Once upon a time, from 10lbs. to 12lbs. were the average weights, but they have gradually gone up. The factors generally begin to inspect the dairies about the middle of August, and take so many dozen "at Time's price," which is guided by Loughborough fair.

Stilton, like new-milk cheese, requires an immense deal of management on rich land, which is apt to make it "slape-coated," and to generate mites. Poor land does not give half the trouble, and entails far less draining in cloths. It is made with the full morning's milk, half the overnight's milk (of which a portion is sometimes heated), and all the overnight's cream, but it doesn't always get treated so well. The whey makes good cream, and the salt is taken off it by filling up the cream bowl with hot water. Many makers like to keep their rennet in salt, as it is keener, and binds the curds better. The curd so formed is pressed in strainers for the day to make it firm, and then placed in hoops and bound round with cloths, till it becomes dry and coated. The cloths are changed twice-a-day, so as to let the coat form naturally, and the outside is also smoothed with a knife. If it is warm weather, the cheeses will acquire that nice melon-like rind in four or five days. Some of them will lose 6lbs. in drying. For choice they should be kept eight months, though the green mould will appear in three or four. With a warm summer, they ripen much faster, but great attention to atmosphere is required, as the flies will strike them as they

do meat, and the mites must be kept away by assiduous brushing. There is in truth nothing that requires more unwearied attention than a cheese dairy, as new-milk cheese failures are almost uneatable, and some Stiltons are painful to look at, sinking down on one side, as if the whole fabric had given way from below, or degenerating into rusty cannon balls, which have been half flattened against a fort. Anyone who has been through a large cheese warehouse, and seen the taster put into their "frightful examples," can never forget it.

The first "draw" or "weigh" of Stilton cheese in August is generally for shipping, and India is a capital customer. For fresh samples it is difficult to make more than 9d.; but cheese which has been kept for seven months will reach 11d. or a 1s. Really good mellow Stilton should have a smooth, velvety feel in the hand, and a creamy and yet rather sharp taste in the mouth, as the tendency of creaminess is to make them unduly sweet. After all, the late Mr. John Moore of the Old Club at Melton Mowbray described the real article best, when he requested the house steward to procure him "a ripe, red, rusty, and rotten one."

Eddish or aftermath cheese is a sort of aristocratic Stilton, and the undisputed honour of its invention seems to rest with Mrs. Heeley, of Little Dalby. The makers generally begin about the first week of September; but not more than a ton of it is made in the whole county, and that principally round the Dalbys. It is circular in shape, and seldom above 8 or 10 lbs., of a light creamy character, and rather more expensive than common Stilton. When well made it is tasty, but sadly hazardous and breakable in the making, and apt to waste very much as well.

As regards "improved pigs," records point to Mr. Honeybourne of Dishley, whose breed earned the curious recommendation from one writer of "appearing to be crossed with the wild boar." Mr. Buckley of Normanton and Mr. Astley of Odstone were also among the earliest Leicestershire pig-fanciers. Chinese and Berkshire were the Odstone cross; and it was also the practice of the late Mr. Beale of Frolesworth, who was quite a Midland Counties Wainman in his day, to cross the short and thick Chinese, or "Tunkey," as it was called, with the Large Leicester or the Middle-sized Yorkshire, which produced a first-class pig of great weight. Mr. Brendon Everard feeds pigs on a still more extensive scale than Mr. Nuttall; and the whites are kept more or less at every farm-house, which seldom lacks a home-made pork-pie in the season. The pig-jobbers buy porkers of six weeks and upwards, about Hitchin and Bedford, &c., and take them round to the farmers, as there is no pitched market worth speaking of at Leicester. They were once kept to fifteen or eighteen months; but the farmers prefer to realize quicker, and they suit the curers better. Derby is a great curers' market for fat hogs, which are fed by the Derbyshire dairy-farmers, and are rather sandy-coloured, like the Staffordshire sort. Northamptonshire pigs are generally black-and-sandy; and large supplies are drawn by the curers in Leicester (which is gradually becoming a great provision-warehouse for the midlands) from Mr. Wallace of Kettering, Mr. George of Bythorn, and other extensive breeders.

In a good milk-district the pigs get whey and skim-milk, when the cheesemaking is over, along with light corn, barley-meal, beans, and plenty of potatoes. A great pork-pie maker was wont to say that, if he wanted a very special pie, he should feed the pig on baked potatoes. About five hundred pigs are slaughtered weekly in Leicester during the height of the curing season; and a large portion of the legs, loins, and other loose meat is used for pies, both by the Leicester and Melton Mowbray makers. One great ham and bacon firm in Leicester

occasionally kills more than 200 pigs a week on the American principle, which consists in hauling them up by pulleys head downwards, cutting their throats, and then sliding the carcasses, by means of an iron rod, along the ceiling, through the scalding-tub, and other processes, until they are finally cut down in the curing-house. In Leicester the curing does not cease in April; but after that date the ham is split, and is cured as part of the fitch.

Those who may have been leaving Melton Mowbray by the early train cannot have failed to notice several pork-pie hampers at the station. Mr. Adcock began this trade here about forty years ago, and it is still confined to five or six, and rather fewer in Leicester, at least of any importance. November to April is the season, corresponding, in fact, to the "Cumberland ham and bacon-curing term," and some of the makers fill up the intervening months with veal-and-ham pies. A few of them do not content themselves during the season merely with buying legs and loins, but kill pigs for themselves and cure the fitches. The pies are made of all sizes from 1lb. to 20lbs. The smallest ones are principally consumed at railway stations, and the 2lb. and 3lb. pies are destined for higher class customers, and go to the Universities and all over the kingdom, for breakfast and luncheon. Some of the makers turn out from 400 to 500 pies a week, and calculate the rate of baking in a fast oven at one hour for a 1lb. pie, and  $2\frac{1}{2}$  hours for a 3lb. The late Mr. Colin, who acted for eleven years as cook to Sir Harry Goodricke, was the leading maker for many years.

The sheep which bear the county name and had Bakewell for their "inventor" alone remain for notice. Mr. Creswell's father, who died at a patriarchal age two years since, was almost the only man left who remembered him (with his straws or bag of figured marbles on letting days) by sight. Of the Bakewell Ram Club, Mr. Brendon, of Rotharby, was the latest survivor. Mr. Bakewell was buried in the church at Dishley, which has been dismantled for more than one-and-twenty years, and it is no light task to discover his grave in the chancel, where the pigeons roost and the birds make their nests with impunity. His flock descended to his nephew, Mr. Honeybourne, and was gradually dispersed among the Messrs. Stabbins, Stone, Barford, Paget, Baker of Elemore, and Philip Skipworth the elder. Mr. Bosworth is now the tenant of Dishley, and nearly everything has suffered change since then. The Stabbins flock passed over to the Burgesses of Holmepierrepoint and Cotgrave, and was sold off when they died or retired, and much of the blood came into Mr. Sanday's and Mr. Torr's hands. Mr. Buckley's descendant has parted with his flock, and the Stones of Quorn and Barrow, to whom the late Sir Tatton Sykes paid his annual visit amongst others, are known as "shepherd kings" no longer.

The late Mr. Creswell and his father bred from Stone and Stabbins, and Mr. Creswell still keeps a small flock on his paternal acres at Ravenstone, and has won firsts at the Royal with rams at Newcastle, Plymouth, and Bury, besides meeting Mr. Borton successfully at the Yorkshire

show. His Plymouth ram was Black-knee, purchased for sixty-two guineas at Mr. Sanday's sale. Messrs. Spencer, of Snarestone and Whiptoft, also breed pure Leicesters, and for three years past Lord Berners has taken the Smithfield gold medal with his wethers, which have a strong dash of the Sledmere blood.

It is not a county of large flocks; but of late years, more especially on the Market Harborough and Loughborough side, farmers have broken up their land and kept more sheep. The blue-headed Leicester is quite the favourite. The great Leicester sheep fair is on October 10th, and is continued for hoggs for several subsequent Saturdays. The rams have generally been purchased before the fair, and Lincolns, Shrops, and Half-breds have "their claim allowed." The Duke of Rutland's tenants use the Lincoln pretty deeply; but the Shrop is the great favourite, both from his sureness as a server, good constitution, and the value of "the black foot" in the butcher's eyes. Shropshire cull ewes are sometimes bought, and used, more especially round Melton Mowbray, for breeding fat lambs.

Until eight or nine years ago, when Lord Berners and some of his brother-agriculturists established one at Leicester, there was no wool fair in the county, and the wool staplers simply went round. That practice has by no means dropped through, and a great weight of wool is never pitched in the Bell Yard; but still the fair sets the market-price, and the farmer is not left, as he once was, to draw his bow very much at a venture. The fair has become a very important one; and the telegram of its proceedings this year made its mark on the Edinburgh auction sales, which were going on the same day. The following are the regulations of the fair, which is held on the last Wednesday in June:

"No wool will be received later than nine o'clock on the morning of the fair.

"The stewards will be in attendance from ten o'clock until four the day previous, to receive the wool, and it is particularly requested that all parties will send their wool on that day; but it will be admitted from five o'clock to nine on the morning of the fair.

"A ticket must be sent with the wool, stating the quantity of each sort the lot contains.

"That the wool be weighed by the agents authorized by the stewards on its being brought into the yard.

"The sheets will be numbered, and the weight of each entered into a book; the buyers have the option of having it weighed over again if they think proper.

"That twopence per tod be paid by the seller on all wool sold at the fair.

"That the wool be weighed by the sheet, and half-a-pound per tod be allowed for draughts upon the wool, and no further reduction be recognized by the rules of the fair; and it is requested that no money or fee whatever be given to any of the attendants.

"Should any dispute arise between the buyer and seller, it shall be referred to the stewards, and the person they may appoint shall decide the matter in dispute, and his decision shall be binding upon both parties."

H. H. D.

## SMOKING ON THE FARM.

A correspondent wishes to caution farmers against the danger of fire from the practice of smoking either in the barn, the stack-yard, or the field, especially during the intense drought under which the country is now suffering. Two cases to which he refers, as having taken place under his own eye, are enough to appal any person liable to the

same circumstances. On miles of railway the stacks or fields of corn have been destroyed, and several hundred acres of a park by a supposed lucifer; while these are not by any means the only conflagrations that have occurred from the same cause during this summer. Several heaths and commons have thus been set on fire, and immense damage sustained thereby. Indeed, so universal has the

practice of smoking the short pipe become amongst the farm servants and labourers during the working hours—for which practice they can too often plead the example of their employers—that the wonder is, not that such results do take place, but that they are not of far more frequent occurrence. So reckless are those who acquire the habit, that they are perfectly indifferent as to where the lighted lucifer match, or the sparks from the pipe fall, as likely to be thrown upon combustible matter as not. From observation, we are of opinion that a very large proportion of the fires that take place in London arise from the same cause. Valuable business premises, with large stocks of goods, have been destroyed by a lighted match being thrown down an area grating in which was some straw. On the farm at the present time there is ten-fold danger of fire, from the excessively dry state both of the standing corn and the pasture land where there is any grass left, and farmers would be perfectly justified in establishing a rule prohibiting their men from smoking during working hours; a practice which, independent of the danger of fire, consumes no little of the time of labour. We know one instance in which an employer of several men, finding that they were in the habit of smoking while at work and that this led to a great waste of time, announced that any one of them found smoking when he ought to be at work would be dismissed. He only detected one man who transgressed the rule, and him he found drunk with a lighted pipe in his hand amongst some straw in the stable. It is a

question not yet settled whether the disastrous fire that took place a few days since in Kent, by which property to the amount of five or six thousand pounds, including two homesteads, were destroyed, was occasioned by a smoker or by sparks from a railway engine. In that case some fields of standing corn were destroyed; for the ripe straw this season is as combustible as tinder, and so also are the heather and furze on the commons, which have been fired in many parts of the country.

In relation to the same subject we would mention another most reprehensible practice of *street-smokers*, namely, throwing the *lighted lucifer-match* as well as the ends of an exhausted cigar on the pavement. We have, in our own experience, known of four cases in which ladies have been set on fire by such a reckless and dangerous habit; for which there is not the slightest excuse whatever. It would seem as if the very practice of smoking superinduced in some persons a degree of selfishness that renders them perfectly regardless of the welfare of others, whether male or female; otherwise they would see the impropriety of endangering the lives of the passers-by. So common is the habit of street-smoking become, and with it the danger, that it is positively unsafe for a lady in a muslin dress to walk about; for you may constantly see men fling down their lighted matches without any thought of, or care about the consequences. In such a season the farmer should use every precaution to prevent accidents from fire in the field and the homestead.

## GLOUCESTERSHIRE AGRICULTURAL SOCIETY.

### MEETING AT GLOUCESTER.

The Herefords were in tolerably good force at the society's annual show, reaching to 44 entries.

In the class for bulls above two years old, Mr. J. R. Paramore, of Dinedor Court, takes first prize with Dinedor; Mr. Duckham, of Baysham Court, second, with Reginald; while Mr. Taylor, of Showle Court, gets a first-class commendation with Triumph. In the class for bulls above one and under two years old, Mr. Paramore is again first with Chancellor, and Mr. Bradstock second; Mr. Prosser, of Broadway, being commended.

Amongst the bull calves, three in number, Mr. Paramore was first, and Mr. John Baldwin second.

The class for bull, cow, and offspring had three entries, with the first prize to Mr. Thos. Rogers, of Coxall; the bull being the Leicester prize winner, Battenhall; the cow, Gentle Anne. Mr. E. J. Morris, of Stanley Pontlarge, takes second prize with Memento.

In the class for breeding cows Mr. J. Baldwin is first with Venus 6th, a Monnaughty cow. This cow was shown at Bingley Hall last year, and was destined for the butcher; but Mr. Baldwin was persuaded to keep her, as she was then in calf, and having gone on very well she again appears in public.

Both prizes for heifers under three years old fell to Mr. Prosser, without competition; and there was virtually no competition in the class for heifer calves, in which the prize is taken by Mr. John Wignmore, who is also highly commended for three dairy cows.

The Shorthorns are, of course, in much greater force than the Herefords, numbering 106 entries; and some of the animals are excellent representatives of their breed. The chief prize-takers are Mr. Richard Stratton, Wall's End; Mr. Joseph Pulley, Lower Eaton, Hereford, who is second in the aged bull class, with Royal Buck, bred at Maindee, Newport; Viscount Sudeley, Earl of Radnor, Mr. Charles Hobbs (Maisey-hampton), Messrs. Garne and Son (Northleach), Mr. Geo. Garne (Chipping Norton), and the Rev. W. H. Beaver, Penraig Court, Ross. Viscount Sudeley takes the prize for the best Shorthorn bull in the yard, an aristocratic-looking white of rare quality; but many would prefer the bull which stands near him, belonging to Earl Radnor. For breeding cows, Mr. George Garne (Chipping Norton) took the first prize, as

well as the second for heifers. The Rev. W. H. Beaver takes second prize in the breeding cow and heifer calf classes; and in the latter class Mr. Stratton wins with a splendid animal; perhaps the best Shorthorn in the yard.

With sheep, 190 in number, the Cotswolds predominated, and there were many grand specimens shown by the most noted hill breeders; the aged prize ram of Mr. J. K. Tombs being an animal of grand scale and form. The Shropshires, very few in number, are good, the chief exhibitors being Mr. E. Holland, M.P., and Mr. Charles Randell, of Chadbury, each of whom takes prizes. In the other short-wool classes the Duke of Beaufort and the Earl of Radnor are prize-takers.

The pigs, numbering 80, were principally of the Berkshire breed.

The horse department was a large and attractive one, the entries reaching to 102. That good horse Ivanhoff, the property of Mr. E. Griffiths, of Marie Hill, near Cheltenham, was first in the class for thorough-bred stallions, and Mr. Henry Brown, of Monkton, Swindon, was second with a handsome dark bay by Artillery. In the class for entire cart-horses, Mr. Wynn, of Alcester, repeated his Birmingham and other victories with his grand grey A 1; and Mr. Wm. Allen, of Hart-pury, was second with a young roan. The classes for cart-horses, hunters, and hacks were good.

Three prizes were awarded for implements—to Nalder and Nalder (Limited), Challow, Wantage, for a thrashing machine; to Savory, High Orchard, Gloucester, for a corn mill; and to Waites, Northgate-street, Gloucester, for a chaff-cutter.

The judges for cattle were Mr. J. Knowles, of Wetherly, Yorkshire, and Mr. H. Higgins, of Woolaston Grange, Lydney. Sheep and Pigs: Mr. T. Porter, Baunton, and Mr. F. Burnett, Kingscote. Cart Horses: Mr. W. Richards, Dursley, and Mr. W. Curtis, Fernham, Faringdon. Hunters and Roadsters: Mr. J. R. Raymond-Barker, Fairford Park; Mr. A. Harrison, Edgbaston; and Mr. J. E. Bennett, Husbards Bosworth, Rugby. Implements: Captain de Winton, Wallsworth Hall; Mr. W. Glover, Warwick; and Mr. J. T. Harrison, Maids-hill, London.

The annual dinner of the society was held on Thursday in a large marquee on the ground; Mr. E. Holland, M.P. for Evesham, in the chair.

## THE HIGHLAND AND AGRICULTURAL SOCIETY'S SHOW AT ABERDEEN.

The forty-first annual show of the National Agricultural Society of Scotland was opened on July 29th, at Aberdeen, this being the fifth show which has been held by the Society in that City. The site of the showyard was The Links, about 14 acres of which had been boarded off, with stalls and shedding suitable for the display of stock and implements to the best advantage. There is a slight drawback in the undulating character of The Links, the surface not being so level as is desirable, but, notwithstanding this the Society may well be congratulated upon the site, and on the arrangements of the present exhibition. The most prominent feature of the cattle classes was the display of Polled Angus, which were shown in considerable numbers, and several very superior specimens were in competition. These included the famous Forth, now in the herd of Mr. Cruickshank, and Heir of Englishman, first here, and, as many would have it, the second-best at Leicester. The Galloways were also very good. It was also considered by several eminent judges that never at any previous exhibition of the society were there so many superior Short-horns brought together in competition. In the aged bulls the judges had apparently much difficulty in placing the animals. The class for two-year-old bulls was also good, but not equal to the aged class as regards uniformity and general excellence. Yearling bulls were a good class, but the cows were not very equal in point of merit. Owing to a misunderstanding between the directors of the Highland Society and the railway directors as to the returning free of charge of cattle in horse-boxes, some of the Ayrshires entered for exhibition were not sent forward; and, from the same cause, not content with simply not sending their horses to Aberdeen, a number of dissatisfied intending exhibitors arranged a show of Clydesdale horses and of Ayrshire cattle in Glasgow on the same day as the national show was being held at Aberdeen! The Society having offered the handsome prize of £100 for a thoroughbred horse to serve in the district, a number of well-bred animals were brought forward; the greater number of these, however, were better adapted for breeding carriage-horses and horses for the saddle. There was a fair show of roadsters and ponies, and as these were shown in action they attracted considerable attention. It was generally admitted that the Leicesters were the best show that has appeared north of the Tay. The Cheviots also were particularly good, but the competition was somewhat restricted; and there were very good specimens of the blackfaces. In the pig classes there was a very limited competition.

## JUDGES.

**Cattle.**—Short-horns: L. C. Crisp, Hawkhill, Alnwick; Joseph Culshaw, Towneley Park, Burnley; Andrew Mitchell, Alloa. Polled Angus: Robert Hector, Montrose; James Lealie, The Thorn, Blairgowrie; George Williamson, Shempston, Elgin. Polled Galloway: Thomas Gibbons, Burnfoot, Esk, Longtown, Cumberland; A. C. Pagan, Innergeldie, Comrie; James Shennan, Balig, Kirkcudbright. Highland: John McArthur, Acarrach, Inverary; Donald McIntyre, Tighnablaire, Comrie; Duncan Mitchell, Blairvockie, Luss. Ayrshire: H. D. B. Hyalop, Tower, Sanquhar.

**Horses.**—Draught Horses: John Dickson, Sanghton Mains, Edinburgh; Alexander Young, Kin Mains, Dunblane; John Young, Fulwood, Houston. Thorough-breds: George A. Gray, Millfield Hill, Wooler; Nicol Milne, Faldonside, Melrose.

**Sheep.**—Ayrshire: H. D. B. Hyalop, Tower, Sanquhar; Hugh Kirkwood, Killermont, Maryhill; John Waugh, of St. John's Kirk, Biggar. Fat Stock: Stewart Johnstone, Perth; D. Smith, Leyshade, Dundee. Leicester and other Long-woolled: William Purves, Linton Burnfoot, Kelso; John Wilson, Edington Mains, Chirnside. Cheviot: William Henderson, Langbeford, Wooler; John Scott, Drynock, Broadford, Skye; William Thompson, Ryle, Alnwick. Blackfaced: James Coubrrough, Blairtummoch, Campsie; George Howieson, Rannagulzion, Blairgowrie; Donald McIntyre, Tighnablaire, Comrie. South Down and other Shortwoolled: George

A. Gray, Millfield Hill, Wooler; G. A. Thompson, Farmine Hall, Carlisle.

**Pigs.**—James Deans, Dalkeith Park, Dalkeith; A. C. Pagan, Innergeldie, Comrie; James Shewan, Balig, Kirkcudbright.

## PRIZE LIST.

## CATTLE.

[NOTE.—All the third prizes received silver medals.]

## SHORTHORN.

First prize bulls at former shows.—Gold Medal, Amos Cruickshank, Sittytton, Aberdeen.

Bulls calved before 1st January, 1866.—First prize, £20, Geo. Barclay, of Keavil; second of £10, James Cochrane, Little Haddo; third, James White, Little Clinterty.

Bulls calved after 1st January, 1866.—First prize, £20, George Marr, Cairnbrogie; second of £10, David Ainalie, Costerton; third, John Copland, Mainhead.

Bulls calved after 1st January, 1867.—First prize, £10, George Robertson; second of £5, William S. Marr, Upper-mill; third, George Robertson.

Bull calves calved after 1st January, 1866.—First prize, £6, John Copland; second of £3, Alexander Bruce, Wealthiton. Cows of any age.—First prize, £15, George Shepherd, Shethin; second of £8, Amos Cruickshank; third, Charles Bruce.

Heifers calved after 1st January, 1866.—First prize, £10, David Ainalie; second of £5, the Duke of Buccleuch; third, Lord Kinnaird, K.T.

Heifers calved after 1st January, 1867.—First prize, £8, David Ainalie; second of £4, Lord Kinnaird, K.T.; third, David Ainalie.

Heifer calves calved after 1st January, 1868.—First prize, £6, Robert Scott, Manbeen; second of £3, William A. Mitchell, Auchnagathle; third, Henry A. Rannie, Mill of Boyndie.

Prize cows at former shows.—First prize, Gold Medal, the Duke of Richmond, K.G.

## POLLED ANGUS OR ABERDEEN.

First prize bulls at former shows.—Gold Medal, Alexander Paterson, Mulben.

Bulls calved before 1st January, 1866.—First prize, £20, and silver medal as breeder of best bull, Alexander Morison, of Beguie; second of £10, William James Taylor, Rothiemay House; third, Robert Walker, Portlethen.

Bulls calved after 1st January, 1866.—First prize, £20, William McCombie, of Easter Skene; second of £10, William McKnight, Boghead; third Robert Walker.

Bulls calved after 1st January, 1867.—First prize, £10, George Brown, Westertown; second of £5, the Earl of Dunmore; third, Robert Walker.

Bull calves calved after 1st January, 1868.—First prize, £6, William McCombie, Tillyfour; second of £3, David Bait Lyall Grant, of Kingsford, Alford; third, Robert Walker, Menthle-ton, Banff.

First prize cows at former shows.—Gold Medal, Trustees of the late J. H. E. Wemyss, Wemyss Castle, Kirkcaldy.

Cows of any age.—First prize, £15, Col. Charles Fraser; second of £8, and third, William McCombie, Tillyfour.

Heifers calved after 1st January, 1866.—First prize, £10, James Skinner, Drummin; second of £5, the Earl of Southesk; third, William McCombie, Tillyfour.

Heifers calved after 1st January, 1866.—First prize, £8, and second of £4, William McCombie, Tillyfour; third, the Earl of Dunmore.

Heifer calves calved after 1st January, 1868.—First prize, £6, second of £3, and third, Wm. McCombie, Tillyfour.

## POLLED GALLOWAY.

Bulls calved before 1st January, 1866.—First prize, £20, and silver medal as breeder of best bull, James Cunningham, Tarbroch; second of £10, James Graham, Parcelstown.

Bulls calved after 1st January, 1866.—First prize, £20, Jas.

Graham, Braidlee; second of £10, James Cunningham; third, John Cunningham, Whitecrair.

Bulls calved after 1st January, 1867.—First prize, £10, John Fisher, Knells, Carlisle; second of £5, John Cunningham.

Cows of any age.—First prize, £15, and second of £8, Jas. Cunningham.

Heifers calved after 1st January, 1868.—First prize, £10, James Cunningham; second of £5, the Duke of Buccleuch; third, James Cunningham.

Heifers calved after 1st January, 1867.—First prize, £8, and second of £4, James Graham, Parcelstown; third, the Duke of Buccleuch.

First prize cows at former shows.—Gold Medal, James Graham, Parcelstown.

#### HIGHLAND.

Bulls calved before 1st January, 1865.—First prize, £20, and silver medal as breeder of the best bull, John Malcolm, of Poltalloch; second of £10, the Duke of Athole; third, Alex. Fraser, Fallow.

Bulls calved after 1st January, 1865.—First prize, £20, the Duke of Athole; second of £10, Donald M'Laren, Corrychone; third, J. Gordon, Manar.

Bulls calved after 1st January, 1866.—First prize, £10, and second of £5, John Stewart, Duntulm; third, the Hon. Lady Menzies.

First prize bulls at former shows.—Gold Medal, Robt. Peter, Ular.

Cows of any age.—First prize, £15, John Malcolm; second of £8, John Stewart, Duntulm; third, the Duke of Athole.

Heifers calved after 1st January, 1865.—First prize, £10, Robert Peter; second of £5, John Malcolm; third, Robert Peter.

Heifers calved after 1st January, 1866.—First prize £8, the Duke of Athole; second of £4, and third, John Malcolm.

First prize cows at former shows.—Gold Medal, the Duke of Athole, K.T.

#### AYRSHIRE.

Bulls calved before 1st January, 1866.—First prize, £10, and silver medal as breeder of the best bull, Wm. Buchanan, Coxithill; second of £5, John Stewart, Burnside Cottage.

Bulls calved after 1st January, 1866.—First prize, £20, Robert Wilson, Forehouse; second of £10, John Stewart.

Cows in milk of any age.—First prize, £15, Robt. Wilson; second of £8, John Semple, Dunbarrow; third, John Stewart.

Cows in-calf of any age.—First prize, £15, A. Morton, Bickerton Hall; second of £8, John Stewart; 3 Robert Wilson.

Heifers calved after 1st January, 1866.—First prize, £10, Robert Wilson; second of £5, and third, John Stewart.

First prize cows at former shows.—Gold Medal, the Duches Dowager of Athole.

#### FAT STOCK.

Polled oxen calved after 1st January, 1865.—First prize, William M'Combie, Tillyfour; second, James Stephen, Conglass; third, James Skinner, Drumin.

Polled oxen calved after 1st January, 1866.—First prize, Wm. M'Combie, Easter Skene; second, Wm. M'Combie, Tillyfour; third, Robert Bruce, Kinloss.

Oxen of any pure or cross breed calved after 1st January, 1865.—First prize, Thomas Ross, Hill Head; second, Richard H. Harris, Earnhill; third, John Frost, Delab.

Oxen of any pure cross breed calved after 1st January, 1866.—First prize, Wishart and Wisely, 92, Gallowgate, Aberdeen; second, William M'Combie, Tillyfour; third, Robert Moir.

Highland oxen calved after 1st January, 1864.—First prize, J. and W. Martin, Aberdeen; second, George and J. G. Smith, Minmore, Ballindalloch; third, the Duke of Sutherland.

Highland oxen calved after 1st January, 1865.—First prize, George and J. G. Smith; second, Alexander Mitchell, Newburgh; third, Thomas Knowles, Aberdeen.

Cross heifers calved after 1st January, 1865.—First prize, Robert Bruce, Forres; second, James Reid, Graystone; third, James Skinner, Auchmull.

Cross heifers calved after 1st January, 1866.—First prize, Alexander Cowie, Cromleybank; second, Harry L. L. Morrison, Guise; third, J. and W. Martin.

#### EXTRA CATTLE.

Silver medals have been awarded to James Stephen and Walter Scott.

Silver medals have been awarded to Alexander Morrison, Bognie; Robert Walker; J. and W. Martin; and Harry L. L. Morrison, Guise.

#### HORSES.

##### FOR AGRICULTURAL PURPOSES.

Stallions foaled before 1st January, 1865.—First prize, £30, James Hall, Aberdeen; second of £15, Murdo Bethune; third, John Thomson.

Entire colts foaled after 1st January, 1865.—First prize, £20, Samuel Clark, Manawrae; second of £10, John Macdonald, Duntocher; third, John Walker, Isaacstown.

Entire colts foaled after 1st January, 1866.—First prize, £15, The Earl of Strathmore; second of £8, Peter Beattie, Dunnydeer; third, Wm. Wilson, Balquharn.

Entire colts foaled after 1st January, 1867.—First prize, £10, Jos. Tait, Portsoy; second of £5, Alex. Milne, Corse of Kinnoir; third, The Earl of Strathmore.

Mares (with foal at foot) foaled before 1st January, 1865.—First prize, £20, Alexander Sim, Fawella, Keithhall; second of £10, Murdo Bethune, Dreim of Highfield, Beaul; third, Adam Gray, Harestone.

Mares (in-foal) foaled before 1st January, 1865.—First prize, £15, and second of £8, Alex. Milne; third, Andrew F. Williamson, Caskieben Mains.

Fillies foaled after 1st January, 1865.—First prize, £10, John Kerr, Mid-Calder; second of £5, James Murray, Fauchfauld; third, John Taylor, Coldstream.

Fillies foaled after 1st January, 1866.—First prize £8, James Freeland, Broadgate, Strathblane; second of £4, The Duchess Dowager of Athole; third, Patrick Davidson, Inchmarlo.

Fillies foaled after 1st January, 1867.—First prize, £6, James Moir, Wardhouse; second of £3, Thomas Milne, Insch; third, William Riddell, Hillhead.

EXTRA SECTION.—Thorough-bred stallions, to serve in the district.—Prize of £100, Robert Paterson, Birthwood, Biggar.

EXTRA HORSES.—Roadsters.—Silver medals were awarded to Alex. Brown, Pitcairle; James Hay, jun., Little Ythais; and James Lamsden, Braco.

#### SHEEP.

##### LEICESTER.

Tups not four-shear.—First prize, £10, George Thomson, Pitmedden; second of £5, Lawrence Drew; third, John Hunter.

Dinmont or shearing tups.—First prize, £10, David Ainslie; second of £5, Adam Smith; third, The Earl of Southesk.

Ewes not above four-shear.—First prize, £8, Lawrence Drew; second of £4, David Ainslie; third, George Simson.

Shearling ewes or gimmers.—First prize, £8, George Simson; second of £4, David Ainslie; third, George Torrance.

##### CHEVIOT.

Tups not above four-shear.—First prize, £10, Thomas Elliot; second of £5, James Brydon, Kinnelhead; third, Thomas Elliot.

Dinmont or shearing tups.—First prize, £10, John Archibald, Glengelt; second of £5, Thomas Elliot; third, John Archibald.

Ewes not above four-shear.—First prize, £8, John Archibald; second of £4, Thos. Elliot; third, John M'Gregor, Bellridding.

Best pen of Lambs.—Thomas Elliot.  
Shearling ewes or gimmers.—First prize, £8, James Brydon; second of £4, Thomas Elliot; third, John Archibald.

##### BLACKFACED.

Tups not above four-shear.—First prize, £10, John Archibald, Overshiels; second of £5, Thomas Aitken, Listonshiels; third, John Archibald.

Dinmont or shearing tups.—First prize, £10, second of £5, and third, John Archibald.

Ewes not above four shear.—First prize, £8, John Archibald; second of £4, Allan C. Pagan, Comrie; third, the Hon. Lady Menzies.

Best pen of lambs.—Silver medal, John Archibald.  
Shearling ewes or gimmers.—First prize, £8, John Malcolm; second of £4, John Inch, Mitchellhill; third, John Archibald.

## SOUTHDOWN.

Tups not above four-shear.—First prize, £10, John Gordon, Parkhill; second of £5, Robert Scot Skirving; third, John Garland, Cairnton.

Ewes not above four-shear, or gimmers.—First prize, £8, Robert Scot Skirving; second of £4, Alexander Kinloch jun., Gilmerton; third, Sir W. G. Gordon Cumming.

## LONG-WOOLLED OTHER THAN LEICESTER.

Tups not above four-shear.—First prize, £10, John Gibson, Woolmet; second of £5, and third, Walter Reid.

Ewes not above four-shear, or gimmers.—First prize, £8, Walter Reid; second of £4, John Gibson; third, Walter Reid.

## SHORT-WOOLLED OTHER THAN SOUTHDOWN.

Tups not above four-shear.—First prize, £10, John Gibson; second of £5, and third, The Earl of Strathmore.

Ewes not above four-shear, or gimmers.—First prize, £8, The Earl of Strathmore; second of £4, John Gibson; third, James Walker, St. Andrews.

## EXTRA SHEEP.

Cheviot widders not above three-shear.—First prize, £6, Thomas Biggar; second of £3, Richard Heath Harris; third, James McGill, Rotchell.

Blackfaced widders not above four-shear.—First prize, £6, Wm. McCombie, Tillyfour; second of £3, James Stewart, Aberdeen; third, Andrew Wilson, Alford.

Cross-bred widders not above three-shear.—First prize, £6, James Stewart; second of £3, John Hunter; third, Richard Harris.

## SWINE.

Boars, large breed.—First prize, £8, Thomas D. Findlay, Easterhill; second of £4, John Laing; third, James Dyce Nicol, M.P.

Boars, small breed.—First prize, £8, R. E. Duckering and Sons; second of £4, Thomas D. Findlay.

Sows, large breed.—First prize, £6, Thomas D. Findlay; second of £3, James Skinner; third, R. E. Duckering and Sons.

Sows, small breed.—First prize, £6, Thomas D. Findlay; second of £3, R. E. Duckering and Sons; third, James Gordon, Manar.

Pens of three pigs not exceeding eight months old, large breed.—First prize, £4, Thomas D. Findlay; second, R. E. Duckering and Sons, Northorpe; third, William Benton, Alford.

Pens of three pigs not exceeding eight months old, small breed.—First prize, £4, Thomas D. Findlay, Glasgow; second of £2, Robert Philp, Bridge of Allan; third, James Gordon.

At the banquet, which took place in the Royal Hotel on Tuesday afternoon, His Grace the Duke of Buccleuch presided, and Lord Dalhousie acted as croupier.

The CHAIRMAN said the show had been one of the most successful the society had had. He was informed that of polled cattle especially the exhibition was one of the finest which had ever been brought together in Scotland. In only two classes, Ayrshire cattle and work horses, was there a deficiency.

LORD DALHOUSIE said: I have been of opinion that the chair of the Highland Society is the "blue ribbon" of agriculture in Scotland, and I think that the "blue ribbon" ought to be dispensed to those who have a knowledge of, and take an interest in agriculture, rather than be confined simply to rank. My Lord Duke, I say this in your presence, rather than in the presence of any other man who has been president of the Highland Society, because if ever a man was entitled, apart from rank, to wear the blue ribbon of the society, it was yourself. There are others holding the same position in society which you do, who have filled the chair of the Highland Society, without having the same claims that you have to that honour; and I think it is somewhat of a reflection upon the Highland Society to say that noblemen, estimable in every respect in their private characters, are preferred, as president of the Highland Society, to such men as the Marquis of Tweeddale, a man who has distinguished himself through a long life not only as a great patron of agriculture, but as one of the most practical of agriculturists, both in tilling the soil and rearing cattle, that we have ever had amongst us. I should like, before the days of that noble lord are worn out, to see him wearing that blue ribbon to which he has such high and acknowledged title.

## SOUTH LINCOLNSHIRE AGRICULTURAL SOCIETY.

## MEETING AT GRANTHAM.

The South Lincolnshire Agricultural Society held its inaugural meeting in the extensive grounds of Mr. H. Brett, at Spittlegate, Grantham, on Friday, July 24, when prizes to the amount of about £660 were competed for. In every respect the meeting was a success. The weather was fine and genial; the entries large, numbering 360 horses, short-horned cattle, sheep, and pigs, 203 poultry, and 42 stands of implements; the number of visitors large, and the arrangements complete and effective.

The horses formed the most numerous class of anything on the ground, the entries numbering 173. The highest prize of £50 for the best four-year-old mare or gelding, in riding order, calculated to make a hunter, was awarded to Brigadier, belonging to Mr. J. B. Booth, of Killerby, that was sold on the ground for the large sum of 400 guineas. Mr. J. W. King, of Ashby Hall, carried off the prize of £20 for the best thorough-bred stallion with Ratacatcher.

Amongst the Shorthorns, the first prize of £20 for bulls and the cup were carried off by Commander-in-Chief, belonging to Mr. T. C. Booth, Warlaby. It was also a somewhat remarkable animal, too, that took the highest prize for the bull exceeding one and not exceeding two years old. This was Lady Pigot's Rosolio, which has been seven times exhibited, and has been successful on every occasion, taking first prizes four times, and second three times. The bull-calf which took the prize of £10 belonging to Mr. G. S. Poljambe, of Osberton Hall, has not been shown before. It was got by the same bull as a couple of calves which took first and second honours at the Royal Show, out of the same cow as Rosa Windsor and The Archduke.

Perhaps of all the classes of animals the sheep presented the most formidable difficulties for the judges, because of their being uniformly good; while of pigs there was only a small show, but the deficiency was amply compensated for by the quality of the animals exhibited.

The show of implements was an imposing one, the whole county being well represented, but, as might naturally have been expected, with Grantham taking the lead in the number of entries, and also doing great things in the way of taking prizes.

## LIST OF PRIZES.

## HORSES.

JUDGES: Of Riding-horses, Lord Keateven, Mr. H. Chaplin, and Mr. C. Nainby; of Cart-horses, Mr. J. H. Wood, Mr. Smeeton, and Mr. T. Colton.

Thoroughbred stallion, for getting hunters (to serve half-bred mares at not more than £5 5s.)—First prize of £20, J. W. King, Ashby Hall; second of £10, Thomas Garne, Willoughby Heath Farm.

Stallion for getting draught horses.—First prize of £15, W. Welcher, Upwell; second of £5, J. Bell, Sturton Retford.

Stallion for getting roadsters.—Prize of £8, Captain F. Barlow, Castle Donington.

Mare for breeding hunters.—First prize of £10, John Byron, Kirby Green; second of £4, R. Hornsby, Grantham.

Mare for breeding draught horses.—First prize of £8, William Tennant, Barlow, Selby; second of £4, B. Padgett, Muston.

Weight-carrying hunting gelding or filly, the property of a

farmer or tradesman.—First prize of £15, W. Stephenson, Bushy Hill, Newbold; second of £5, W. Dudding, Howell.

Horse or mare which can jump the best to the satisfaction of the Judges.—Prize of £10, J. Greenham, Blankney Fen.

Four-year-old mare or gelding.—First prize of £50, J. B. Booth, Killerby Hall, Catterick (given by Mr. H. Chaplin); second of £10, E. Paddison, Ingleby (given by the Association).

Hunting gelding or filly, three years old.—First prize of £10, W. R. Brockton, Farndon; second of £4, R. Hornsby, Grantham.

Hunting gelding or filly, two years old.—Prize of £10, J. W. Gardom, Butterton Park, near Newcastle.

Foal by a thoroughbred horse.—Prize of £3, R. Johnson, Westborough.

Cart filly, two years old.—Prize of £4, John Brewster, Denton Lodge.

Cart filly, one year old.—Prize of £3, C. Lister, Coleby Lodge.

Cart colt foal.—Prize of £5, W. B. Brockton, Farndon.

Cart filly foal.—Prize of £3, T. Sills, Billingborough.

Pair of cart-horses (mares or geldings), not more than seven years old.—Prize of £10, J. C. Woolhouse, Wellingore.

Mare or gelding, for harness purposes, under seven years old.—First prize of £4, J. Hornsby, Grantham; second of £2, J. W. Palethorpe, Harlaxton.

Weight-carrying cob, not exceeding eight years old.—Prize of £5, J. Hornsby, Grantham.

Pony, not more than thirteen hands in height.—First prize of £4, W. Bedford, Grantham; second of £2, A. Gny, Eaton.

#### SHORT-HORNED CATTLE.

JUDGES: Mr. W. Sandy, Mr. Torr, and Mr. W. Bartholomew.

Bull, exceeding two years old.—First prize of £20, T. C. Booth, Warlaby; second of £10, J. Lynn, Stroxtun.

Bull, exceeding one, and not exceeding two years old.—First prize of £10, Lady Pigot, Branches Park; second of £5, G. S. Foljambe, Osberton Hall.

Bull calf, not exceeding one year old.—First prize of £10, G. S. Foljambe, Osberton Hall; second of £5, J. Lynn, Stroxtun.

Bull, exceeding one and not exceeding four years old.—First prize of £15, John Lynn, Stroxtun; second of £5, F. W. Brook, Brauncewell.

Cow, in-calf.—First prize of £10, T. C. Booth, Warlaby; second of £5, James How, Broughton.

Heifer, in-calf.—First prize of £10, Lady Pigot, Branches Park; second of £5, J. Lynn, Stroxtun.

Heifer calf, not exceeding one year old.—Prize of £8, Thos. C. Mayfield, Hagnaby.

Cow or heifer in any of the classes, exhibited by a tenant-farmer residing in South Lincolnshire.—Prize of £10, John Lynn, Stroxtun.

#### COTTAGERS' PREMIUMS.

The best milch cow.—First prize of £3, Joseph Ripley, Normanton; second of £1 10s., John Nix, Ropaley; third of 10s., John Hack, Little Ponton.

Heifer, under two-and-a-half years old.—Prize £2, W. Bullimore, Belton.

#### EXTRA STOCK.

Pair of bullocks.—Prize of £5, Wm. T. Lamb, Welbourne.

A CHALLENGE CUP, VALUE TWENTY GUINEAS.

Bull of any age.—T. C. Booth, of Warlaby.

LONG-WOOL SHEEP (not being Leicesters).

JUDGES: Mr. L. Borman, Mr. W. Chatterton, and Mr. J. Painter.

Ram of any age.—Prize of £20, John H. Casswell, Laughton.

Shearling ram.—First prize of £10 and second of £5, Chas. Clarke, Scopwick.

Two-shear ram.—First prize of £10 and second of £5, John H. Casswell, Laughton.

Pen of five gimmers.—First prize of £10, C. Clarke, Ashby-de-la-Launde; second of £5, Charles Lister, Coleby Lodge.

Pen of five ewes.—First prize of £10, C. Clarke, Ashby-de-la-Launde; second of £5, F. Sardeson, Cranwell.

#### LEICESTER SHEEP.

Ram, of any age.—Prize £10, John Lynn, Stroxtun.

Pen of five ewes or gimmers.—Prize of £5, John Lynn, Stroxtun.

#### EXTRA STOCK.

Pen of five shearling wethers.—Prize of £5, T. R. Casswell, Quadring.

#### PIGS.

JUDGES: Mr. L. Borman, Mr. W. Chatterton, and Mr. J. Painter.

Boar of the large breed.—First prize of £5, R. E. Duckering and Son, Northorpe; second of £2, Thomas Cant, Barkston.

Breeding or suckling sow, of the large breed.—First prize of £4 and second of £2, R. E. Duckering and Son.

Boar of the small breed, not exceeding eighteen months old.—First prize of £5, R. E. Duckering and Son; second of £2, W. Bartholomew, Waddington Heath.

Breeding or suckling sow of the small breed.—First prize of £4, G. P. Watson, Londonorpe; second of £2, R. E. Duckering and Son, Northorpe.

Boar of the Berkshire breed, not exceeding eighteen months.—First prize of £4, W. Dudding, Howell.

Boar of any breed or age.—First prize of £5, R. E. Duckering and Son.

Three breeding pigs of one litter, exceeding three and not exceeding six months old.—First prize of £5, R. E. Duckering and Son.

### DRIFFIELD AGRICULTURAL SOCIETY.

Driffield, renowned as it is for its show of horses, more especially its hunting classes, has not kept pace with the times as to the management and conduct of the show-yard, for a more primitive exhibition in that respect we have seldom come across. With the animals left without the slightest protection from sunshine or rain, the public, although supplied with a catalogue, if not possessed of the determination, sagacity, and stoutness of a foxhound to run each horse to his lair, and read the parcel-like label with which he was ticketed, was left totally in the dark as to what he was or to whom he belonged. Beyond this, for some cause unknown to anyone but the layer-out of the ground, a fair-sized ring, that would have allowed the horses to get into something like a stride, was divided in half by a rail, either to bring it down to the confined dimensions of the Halls

of Islington or Birmingham, or to make use of an extra stock of labour, timber, and ingenuity. Then at mid-day the judging was stopped an hour or two for luncheon, hear, hear, Bravo! and so forth; the consequence being that the visitors became wearied out, and took their departure long before the roadster and coaching stallions were judged; while the string of hunters sent for exhibition, though not for competition, by Mr. President Hall, stood all the day clothed in a corner of the field, and were never paraded at all! Mismanagement in these parts is more to be wondered at, as the Society has such a model to go by in its big brother—the Yorkshire Agricultural Society. The show of horses was good, but the great attraction was the hunting-classes, the first to come before the judges being the hunting brood-mares. Of these, four in number, the first was a



neat little mare, by Sleight of Hand, bred by the late Sir Tatton Sykes, whose well-known stud-groom Snarry was in the flesh, leading a hunter of the present baronet's about the ground. The second mare, Annie by Robinson, showed some hunting character, with well-formed limbs; while Mr. Holtby's The Nun was remarkable for her large frame and faulty forelegs; and the best two-year-old hunting gelding, or at least the picked one, was anything but perfect in his tobacco-pipe-like pins. Mr. Danby, of Beverley, had a good-looking youngster, by Defender, quite a model if in a coaching class; and Sir George Cholmley a couple, by Angelus, the gelding being remarkable for his size and coarseness, while the filly was passable. Amongst the yearlings Sir George was first, with a leggy, flat-sided, soft-looking one, by the same horse, beating, among others, anything but a bad-made filly, by Piccador, of Mr. Hudson's, of Beverley. For the silver cup, given by the President, a dozen, out of an entry of seventeen, came before the judges, making a fair-looking class, the mug eventually going to Mr. Booth's Brigadier, the first four-year-old at Leicester, and who has since been gathering honours at Louth and Grantham, beating Honesty, a nicely-put-together stylish horse, by the Cardinal, of Mr. Stephenson's, of Brough; Julius by Orpheus, another overgrown one, with anything but symmetrical looks, of Sir George Cholmley's, although he took first four-year-old honours at Bridlington, on the Tuesday—a Society, in its thirty-third year, that for management is, if anything, rather behind Driffield. Mr. Barkworth's Hidalgo by Cavendish, a shortish, powerful horse, with his head set on throaty, went very oily and well; Mr. Harrison exhibited a nice-looking bay by Napoleon, and Mr. Holiday one by Codrington. The silver cup, for three-year-old hunting geldings or fillies, went to Syringer by Orest, a fine-grown bay gelding, of Mr. Lambert's, of Welton, a well-known *slashing* rider in Yorkshire; the commended being a chesnut filly of Mr. Danby, of Louth, and rather back at her knee, while a deep, short-legged black mare by Walkington, dam by Orestes, with length, breed, and good ends, just recovering from the strangles, was well worthy of notice, if not the pick of the basket. The All England silver cup for mares or geldings of any age, with an entry of forty-one in the catalogue, brought twenty-five into the ring, the principal absentees being the General and Master of Arts. The former, we think, might have taken the cup; while the latter, that Trojan horse and prize glutton, we saw passed, as he always ought to have been, unnoticed in the showyard at Bridlington. Of those present were Lady Derwent, who, with all her good looks, does not strike us as a hardy one or a stayer, and we are much mistaken if she is not more in her element in the show-yard than she would be in the hunting-field. Sprig of Nobility, a taker of a hundred at Islington one year and as handsome as ever, had not his chance improved by the assistance given him by the gentleman up, and who, if we mistake not, did not show him to advantage at Thirsk, and never will. Then the popular candidate for Parliamentary honours, Mr. C. Sykes, had half-a-dozen very useful weight-carriers; but they were not duly elected, although a heavy weight in search of a horse to represent him at the end of a run, may trot some miles about the country before meeting with such likely animals as The Colonel, Eta, and Gardener. Mr. Johnson's (of Lowes-thorpe) chesnut by Canute was a capital stamp of horse, with power, length, quality, good ends, and short honest-looking limbs, and he moved quick, strong, and well, without fuss. If we mistake not, he would leave Lady Derwent and many others the other side of Jordan in a long thing. Sir W. L. Hudson's Highborn, with something of the General's cut about him, but not so grand, is

a very taking animal, but rather light below the knee; while Emperor, of Mr. Stephenson's, though compact, well-set, strong, and hardy-looking, has a temper of his own, or his eye belies him. Garland belonging to Mr. Snarry of Malton, was a light corky gentleman; Mr. Smith's Two per Cent., and Mr. Bowman's bay by Lancelwood, are nice-looking ones; while Trident pleased us best of the Orpheus get, but more so when standing still, as he is not a strong goer. After some sorting, Lady Derwent, Highborn, and Emperor were picked out and ridden by the judges; the cup after some deliberation being given, as it had been before by some of the bench, to Lady Derwent, Highborn and Emperor being decorated with the green riband. We should have much liked to see the President's string stripped, as there was some genuine-looking metal amongst them, many being stamped with the Hall mark in the shape of scars or the irons. Wrangler, a thoroughbred in his sixteenth year, though penitent about the knees, was a varmint, active, wiry-looking old fellow, of a rare stamp; as was the lengthy short-jointed Doctor, who was full of character. Then Straight Stick, the Orphan, and several more were worthy of being seen, as they would have been if the show had been properly conducted, and the time not taken up in guzzling and turning a show-yard into a Cogers Hall for spouting at mid-day. People don't go to Cogers Hall to see horses, or come to a horse show to hear speeches; at least we don't.

The eight pounds for thorough-bred hunting stallions brought the well-known Angelus, who took the royal hundred at Leicester, where we gave a description of him, that we had often given before. He is a favourite with many of the Yorkshire farmers, because he is such an eye-full. He was looking much better for his sweat at Leicester, having got rid of a deal of unnecessary flesh. Theobald, a chesnut horse, well put together, and, if as good in his forelegs as he is in his hind ones and elsewhere, would be difficult to beat—and he is now anything but a bad one—was well worthy of second honours, and of first at Bridlington, where he beat the lengthy, good-ended, short-limbed, though lightish-middled, Strathern. Theobald is by Stockwell, dam by Red Hart, but he never did anything on the Turf. He was christened after the sporting old hosier of Snow-hill, and breeder of Stockwell, whose blue coat and brass buttons, bulky, saffron-coloured leathers and roomy tops must have been familiar to many. Then came the long, hollow-backed, rather grand-looking Cathedral by Newminster, out of Stolen Moments by Melbourne, and who, when on the Turf, scored three races out of ten, winning the Great Northern Handicap at York; the fourth being the rather neat, good-limbed, little Schuloff by Cossack, but whose staggering hind-leg action put him out of the bout.

The Coaching and Roadster Classes were well-represented, both in the stallion mares and young horses; the good-looking Inkermann beating the well-known Blondin, who in a smaller class was first at Bridlington. Among the Roadster Stallions were many well-known stagers, including the winner, All-Fours, renowned for his neatness and his movements, although ordered out of the ring at Thirsk last year before he had got fairly once round! The second horse is more cobby, with less quality—the thick-set, low, short-legged St. Ives, the first roadster at Bridlington. Mr. Smith's old mare Venture, as active-looking as ever though in her twentieth year, and the taker of forty-three prizes, added another to her long score; while Mr. Johnson, of Driffield, exhibited a very fine mare. The first three-year-old cocher was well made, on a short leg, and had a very fair match by his side, both being by Blondin; while the second prize was a leggy one, and not well put together. Polly, an old and a great aversion of

ours, a heavy-shouldered hammering cob, was the first roadster mare. There were several nice ponies, and the agricultural classes—all local prizes—were well-filled with the thick-set black active-looking cart-horses of the county. There was but a poor show of Shorthorns as to numbers, though there were some well-bred ones among them, the all-aged bull here being first at Burlington also, as well as one of Lady Pigot's breed. He is an animal of great size, and good to the touch. In the extra-stock the prize went to a pair of black Aberdeen Scots. There was but a handful of sheep, but little and good, Messrs. Borton, Riley, and Sharp opposing one another for Leicesters; while Mr. Dickson, of Nafferton, with a very good-looking pen, beat Mr. Foster, of Southburn. The Leeds pigs, with more prizes than pigs, had it all their own way, and they calculate beating the Leicester big boar at Wetherby, with Royal Oak.

## PRIZE LIST.

## JUDGES.

SHORT-HORNS, SHEEP, AND PIGS: R. Jefferson, Whitehaven, Cumberland; T. Marris, Ulceby, Lincolnshire; G. Smart, Aberford, St. Milford.

HORSES (THOROUGH-BRED AND HUNTERS): J. E. Bennett, Husband Bosworth Grange, Rugby; Edward Paddison, Ingleby, Lincoln; Charles M. Nainby, Great Grimaby.

COACHERS, ROADSTERS, CART, &c.: G. Wightman, Fulwood Park, Preston; R. P. Hamilton, Asenby, Thirak; T. Potter, Trowell, Nottingham.

## SHORT-HORNS.

Bull of any age.—First prize of £10, William Linton, Sheriff Hutton (British Hope); second of £5, William Linton (White Windsor).

Bull calf under twelve months old.—Prize of £3, John Cattley, Stearsby, York (Prince Leopold).

Cow in-calf or milk.—First prize of £5, William Linton (Lady Valentine); second of £3, Executors of the late F. Jordan, Eastburn (Cucumber).

Two-year-old heifer for breeding.—Second prize of £2, T. Dawson, Poundsworth (Snowdrop).

Heifer calf under twelve months old.—Prize of £2, T. Dawson (Miss Flyte).

Fat ox of any age or breed.—Prize of £2, Executors of the late F. Jordan.

## SHEEP.

Shearling ram.—First prize of £10, and second of £5, John Borton, Barton House, Malton.

Pen of three shearling rams.—First prize of £5, Edmond Riley, Kipling Cotes, Beverley; second of £2, J. W. Sharpe, Ulrome, Lowthorpe.

Aged ram.—First prize of £5, Edmond Riley; second of £2, John Borton.

Pen of five breeding ewes, bred in the Riding, having had lambs in 1868, and suckled them up to the time of showing; the lambs to be shown with the ewes.—First prize of £5, John Dickson, Nafferton; second of £2, J. W. Foster, Southburn.

Pen of five shearling wethers, bred in the Riding.—First prize of £4, and second of £2, Executors of the late F. Jordan.

## HORSES.

Stallion for thoroughbred hunters.—First prize of £6, Sir G. Cholmley, Bart., Boynton (Angelus); second of £2, H. S. Constable, Wassand (Theobald).

Stallion coach horse.—First prize of £6, F. Richardson, York (Inkerman); second of £2, M. Medd, Filey (Blondin).

Stallion for roadsters.—First prize of £6, H. R. W. Hunt, Dunnington, York; second of £2, J. Crompton, Thornholme, Lowthorpe.

Stallion for agricultural purposes.—First prize of £6, W. Simpkin, Burton Agnes; second of £2, G. Lamplough, Nafferton.

Mares and foals for hunting.—First prize of £5, Mark Leaper, Sledmere Field; second of £2, G. C. Jarratt, Harpham.

Two-year-old hunting gelding or filly.—Prize of £3, W. Brigham, Beverley.

Yearling hunting gelding or filly.—Prize of £2, Sir G. Cholmley, Bart., Boynton.

Mare and foal for coaching.—Prize of £5, John Smith, Marton Lodge, Bridlington.

Coaching mare without a foal.—Prize of £3, F. Richardson, Moor Town, Beverley.

Three-year-old coaching gelding.—First prize of £5, J. Milner, Middledale, Kilham; second of £2, S. Simpson, Dringhoo.

Two-year-old coaching gelding.—Prize of £3, G. Walmaley, Bridlington.

Yearling coaching gelding or filly.—Prize of £2, John Johnson, Brigham, Driffield.

Coaching filly under four years old.—Prize of £4, J. Stephenson, Winstead, Hull.

Roadster mare and foal.—Prize of £5, William Major Sledmere (Polly).

Roadster nag or mare.—First prize of £5, F. P. Newton, Norton, Malton; second of £2, G. Gale, Atwick, Hull.

Three-year-old roadster nag or mare.—Prize of £3, A. Cranswick, Thornholme, Lowthorpe.

Ladies' pony under 14 hands.—Prize of £3, L. Logan, Lockington, Beverley (Dandy).

Pony not exceeding 12 hands.—First prize of £1, J. E. Moore, Cowden, Hornsea (Joe); second, a whip, J. W. Topham, Bainton.

## AGRICULTURAL PURPOSES.

Mare and foal.—Prize of £5, J. W. Sharp, Ulrome (Jet).

Three-year-old gelding or filly.—First prize of £5, George Chatterton, Coniston; second of £2, John Crompton, Thornholme.

Two-year-old gelding or filly.—Prize of £3, Executors of the late F. Jordan.

Yearling gelding or filly.—Prize of £2, W. Ulyott, Great Kelk.

Pair of horses of either sex regularly worked up to the time of showing.—Prize of £5, John Simpson, Hunmanby.

## PIGS.

Boar, large breed.—Prize of £2, John Dyson, Leeds (Royal Oak).

Sow, large breed.—Prize of £2, John Dyson, Leeds (Morning Star).

Boar, small breed.—Prize of £2, John Dyson, Leeds.

Sow, small breed.—Prize of £2, John Dyson, Leeds (Dew-drop).

Store pig, the property of a labourer or working mechanic.—Prize of £2, Thomas Dawson, Westgate, Driffield.

## SPECIAL PRIZES.

A silver cup, value £25, four-year-old hunting mare or gelding, the animal to possess not less than three crosses of blood (open to all Yorkshire), to J. B. Booth, Killerby Hall, Catterick (Brigadier).

A silver cup, value £25, all-aged hunting mare or gelding (open to all England), to E. Hornby, Flotmanby, Ganton, York (Lady Derwent).

A silver cup, value £10, three-year-old hunting gelding or filly (open to all Yorkshire), to H. Lambert, Wauldbby, Welton (Syringa).

A silver cup, value £10, yearling bull (open to all England), to W. Linton, Sheriff Hutton (White Windsor); second, £3, to J. S. Jordan, Elmswell (Jerry).

A silver cup, value £10, pen of five shearling gimmers, bred in the Riding (open to the East Riding), to E. Riley, Kipling Cotes, Beverley.

DRY SUMMERS.—In 1818 wheat was brought into market, in the south of England, on the 12th of July, and there was no rain until the 6th of September. In 1822, corn was cut and carried on the 5th of July, and the rainfall commenced on the 15th of August. In 1826, the straw of the oats was so short that it could not be reaped: it had in many places to be pulled up with the roots, yet there was never, perhaps, seen a heavier sample.

## THUNDER STORMS.

The effects of thunder-storms on arable and grass lands are very various, heavy showers of rain often doing an immense harm in one field, but good in another. And besides their direct action, they also teach the agriculturist lessons of an indirect character, which ought not to be lost sight of at a time when the public mind is, from the one end of the kingdom to the other, deeply engrossed with the utilization of town sewage.

Thoroughly drained land, either naturally or artificially, swallows up the heaviest shower of rain as fast as it falls upon the surface of a newly or recently cultivated field, as a field of potatoes, mangolds, or turnips. In this way all superfluous water percolates through the staple into the subsoil below. We have seen very heavy thunder-showers thus removed from clayey land, such as that which fell on the 29th May, in the neighbourhood of the metropolis; but in other examples, where the land was also under-drained equally close, we have seen sad havoc played, not only to the newly-braided crops, but also to the land itself; and the difference in the effects thus produced gives rise to many important questions in the raising of green crops, of which the following may be taken as special illustrations.

Thus the question is raised as to whether broadcast or drilling on the flat is less subject to harm from thunder-storms than growing green crops on the ridge system now generally practised? And as thunder-storms are more common in our southern provinces than in our northern, whether they had any effect in determining the growth of green crops on the flat, generally practised by our ancestors in the former, and on the ridge system in the latter?

Generally speaking, land when raised into ridges for drilled green crops is more liable to be washed away than the same quality of land when lying on the flat. This arises from the ridges collecting the water into currents, so that whenever such take place much harm is done. But, on the other hand, when by proper subsoiling the rain-water can be filtered off as fast as it falls into the drains, thereby preventing currents, less harm is sustained under the ridge system than under the flat system, clayey land disposed to run together being less consolidated in examples of the former than of the latter. Again, on steep inclines the prevention of currents will be less or more determined by the direction of the ridges.

Another question arises for solution, one too, which demands special attention, viz.: Is the manure in the land less liable to be washed away under the ridge system than under the flat system? Now that so many artificial manures are being used of a soluble nature, this is a very important question, and the odds, if any, we aver, are here again in favour of the ridge-system when it is properly carried out. The greatly increased breadth of land now being cultivated on the ridge-system may be taken as experimental evidence in support of this conclusion.

With regard to the harm sustained by young mangolds, &c., they are perhaps more at the mercy of the storm than the land on which they grow or the manures on which they feed. When they strike their roots deep into the soil, and are otherwise healthy, they suffer less than when the roots creep along the surface as it were, a fact which forms a practical argument in favour of growing green crops upon half farm-yard manure and half bones, or other artificial fertilizer, for under this method the young mangolds, swedes and turnips not only strike their roots deeper, but otherwise acquire a greater hold of the land during that period of their growth when they are most at the mercy of the thunder-storms, and the blistering action of scorching suns, when their tender leaves are less or more plastered over with soil.

Heavy thunder-showers also, less or more, earth-up young corn plants, and wash away the soil when the rain-water is allowed to collect into currents, but owing to the nature of such crops a less degree of harm is sustained than is the case with green crops. Peas and beans, however, often suffer much harm. Hoeing often grants much relief; and if the last

hoeing has been given under ordinary calculation, an extra turn of the hoes may do more than cover the extra expense incurred. Wheat and rye crops, and indeed all corn crops when far advanced in growth, are very apt to be laid and battened into the ground in such a manner that the portion thus beat down flat to the surface never rises up again, consequently the subsequent vertical growth which takes place forms what is in some districts technically termed "a knee." The portion thus lying flat is more liable to disease, and, in point of fact, is almost invariably less or more diseased, and in wet weather much of it is even rotted. In other examples, the crop thus laid nearly all rises up so as to preserve health; but as the stalks are all bent towards the ground they thereby acquire more strength in one direction than in the opposite one, consequently they become twisted and laid in all directions by subsequent storms, from different points of the compass. In many seasons both these effects are produced in one and the same field, giving rise to no end of difficulties in the harvest-time in the removal of such crops from the ground, either by the scythe or reaping-machine.

Hay crops are similarly liable to be beat down flat to the surface of the ground, and to be rotted or twisted about in every direction the wind blows. The rank, uneven stubble in mowing-time is mostly attributable to the kneeling of the stalks towards the bottom, owing to the grass having been laid by heavy rains when in a young succulent state. When ryegrass is not very thick upon the ground, the heavy thunder shower raises the earth so as to soil the lower portion of the stalks in a manner very injurious to the edge of the scythe, if the soil is not washed off by gentle showers afterwards, or is otherwise removed by the action of the wind. When imperfectly drained, or not drained at all, tenacious clay-lands seldom absorb a thunderstorm as fast as it falls: hence, less or more washing takes place. In such cases a twofold effect is produced; for the crop is not only laid flat, but washed in a manner injurious to its present and future health, generally speaking. In some exceptional cases of bad health, washing may do good, as will be noticed under the next paragraph.

On grass lying in permanent pasture, heavy thunder showers do comparatively little injury, even on sloping clayey ground, which does not absorb them so fast as they fall. The flowing water in such cases, especially in unhealthy ground, floats off not only the small seeds of innumerable weeds, but an amount of animal life almost incredible to those who have not examined the water thus carried, under the microscope or magnifier. On comparatively level ground, where the water stagnates for a time, but does not flow upon the surface, the small seeds of weeds, spores of fungi, eggs of insects, and the life-germs of innumerable "microscopic little bodies" are washed into the soil, and thus perish in the form of manure to the land. A great deal of speculation has been advanced relative to thunder-showers bringing down from the clouds ammonia and so forth; but without deducting one iota of truth from such conclusions, we do not hesitate to say that a great deal too little has been said about the fertilizing properties of thunder showers as above, either by the washing or rotting process; and of the two, the latter is doubtless to be preferred. Hence the greater benefits experienced by the proper drainage of pasture-lands, or lands that are naturally drained, which permit of all such animal and vegetable life being washed into them for manure, during the decomposition of which much ammonia or nitrogenous matter is formed. Heavy thunder showers also wash into the soil much animal and vegetable filth of the above nature from other crops besides grass, when the land is properly drained.

Indirectly, heavy thunder-showers read the farmer a lesson, which ought not to be thrown away, in the utilization of town sewage; for what is a thunder shower but liquid-manuring, not only on the hose-and-jet principle, but also on that of gravitation, the solid matter being removed in both cases. To fallow-lands or stubble-lands this would not be necessary and so on.

## REVIEW OF THE PROGRESS OF CHEMICAL AGRICULTURE.

[TRANSLATED FROM THE FRENCH.]

M. Hellriegel, Director of the agricultural station at Dahme, in Prussia, recently communicated to the editor of the *Landwirtschaftliches Central Blatt* the results of some very interesting experiments upon vegetation. The author purposed determining by experiments the influence of the bulk of the soil put in connection with roots upon the weight of the crops.

M. Zöller in some researches, of which we shall speak more particularly at a future time, made known to the public last year the result of some experiments undertaken for the same purpose. The plant chosen for trial was the haricot, and it showed that, all other things being equal, a certain quantity of earth obviously gives the same weight of crops, whether we put into the soil one, two, three, or four plants at a time.

Some jars of equal dimensions, filled with pure peat, peat and manure, and garden mould, gave the following crops expressed in grammes [The numbers 1, 2, 3, and 5 show the number of stalks on the haricot in each experiment]:—

SOILS.	1.	2.	3.	4.	5.	Average.
	Gr.	Gr.	Gr.	Gr.	Gr.	Gr.
Pure turf .....	24.5	26.4	26.3	29.4	28.9	27.0
Turf and manure .....	90.4	89.6	92.8	90.1	93.3	91.6
Garden earth .....	—	40.1	43.4	44.9	—	42.1

M. Hellriegel's experiments were made in the summer of 1864 upon some oats in pots of three different dimensions, filled with garden mould. The three parallel series comprised twenty-four experiments each, the pots containing respectively from 1 to 24 grains each. The following very important results were brought to light by the experiment:—

**FIRST SERIES.**—Dimensions of the pot: height, 56 to 58 centimetres; diameter outside, 15 to 16 centimetres; diameter inside, 12 to 15 centimetres; weight of earth contained in the pot, 12 kilogrammes 500:—

No. of stems per pot.	Crops per pot. Dry substances in grammes.		
	Grain.	Straw.	Total.
1	14.820	18.338	33.158
2	15.119	16.193	31.312
4	18.786	20.713	39.499
6	18.533	20.401	38.934
8	20.255	21.590	41.815
12	20.807	20.748	41.555
16	20.496	20.885	41.181
24	21.072	20.582	41.654

No. of stems per pot.	Crop per weight, as per kilogramme of earth.		
	Grain.	Straw.	Total.
1	1.188	1.467	2.653
2	1.210	1.296	2.506
4	1.503	1.657	3.160
6	1.483	1.632	3.115
8	1.618	1.727	3.345
12	1.604	1.660	3.324
16	1.640	1.665	3.295
24	1.686	1.646	3.332

It will be seen that in these experiments the weight of the crops remained the same, as there was the same quantity of earth for 8 or 24 stalks of oats. The preceding numbers show that the constancy of the return takes place, not only for the total crop, but also for the straw and grain taken separately. The same law is observed in trials made with pots of much smaller dimensions.

**SECOND SERIES.**—Height of base, 28 to 29 centimetres; diameter above, 14 to 15 centimetres; diameter below, 11 to 12 centimetres; weight of earth, 5 kilogrammes:—

No. of stems per pot.	Grain.	Straw.	Total.
1	9.105	8.163	17.268
2	10.130	9.556	19.686
4	10.960	9.459	20.419
6	11.865	9.917	21.782
8	12.769	9.758	22.527
12	11.956	9.410	21.336
16	11.916	10.402	22.318
24	12.409	12.013	24.422

No. of stems per pot.	Grain.	Straw.	Total.
1	1.821	1.633	3.454
2	2.026	1.911	3.937
4	2.192	1.892	4.084
6	2.373	1.983	4.356
8	2.554	1.951	4.505
12	2.391	1.882	4.273
16	2.383	2.080	4.463
24	2.432	2.402	4.834

**THIRD SERIES.**—Dimensions of pot: height, 13 to 14 centimetres; diameter above, 13 to 14 centimetres; diameter below, 11 to 12 centimetres; weight of earth, 1 kilogramme 667:—

No. of stems per pot.	Grain.	Straw.	Total.
1	4.054	3.647	7.701
2	4.645	4.692	9.337
4	4.351	5.051	9.402
6	4.498	4.050	8.548
8	5.316	4.709	10.025

No. of stems per pot.	Grain.	Straw.	Total.
1	2.432	2.187	4.619
2	2.780	2.815	5.601
4	2.610	3.030	5.640
6	2.698	2.430	5.128
8	3.189	2.825	6.014

These numbers clearly show that the quantity of earth in which the roots can develop and extend themselves determine the yield of the soil. It will be seen that when we grow in a given quantity of earth a number of stalks of a vegetable corresponding to the maximum of the crop, we cannot increase the yield of the soil by adding to the number of the plants: the greater the extent of earth, the smaller is the return per kilogramme. M. Hellriegel thinks the results of these three series of experiments will be better explained in the following words: The produce of a given weight of earth will be in inverse proportion to the cubic roots of the size of the earth.

The volumes of the three series of pots used by M. Hellriegel are between them as 7.5, 3, 1; the cubic roots of these three numbers are respectively 1.93, 1.36, 1. If we compare the four last figures of each of the series, we find the average to be as 3.324, 4.512, 5.913 = 1, 1.36, 1.93—that is to say, very nearly what it would be, supposing the hypothesis of M. Hellriegel to be correct.

Subsequent experiments showed the author, and those who repeated his method, that his report exactly represented the phenomena. But I must hasten to say that that is only secondary; and whatever may be the modification it is neces-

sary to bring to the hypothesis of M. Hellriegel, the very curious facts his researches have put in evidence will not be the less acquisition to science. Let me add that I was enabled, during a visit recently made at the station of Datune, to estimate the rigour, precision, and great cleverness displayed by M. Hellriegel in his works. He has, with good reason, been mentioned as one of the most distinguished chemists in Germany.

Permit me to say a few words more upon a communication recently made by the same experimenter, with regard to the influence of azotized mineral manures upon cereals. Last November, M. Hellriegel stated, at a meeting of agriculturists held at Frankfort-on-Oder, the results of some experiments, the perfect correctness of which I can guarantee, from personal inspection. These trials of the culture of cereals in calcined sand, chemically pure, and added to different doses of mineral manure, showed most clearly the influence of azotized mineral matter upon vegetation, and confirmed the generally admitted idea of the non-assimilation of azote by plants from the air.

Some experiments, made prior to those of which I have spoken, taught M. Hellriegel that 70 parts in weight of assimilable azote contained in a million parts of earth, is sufficient to obtain a maximum yield of wheat; and it would require only 63 parts of azote in the same weight of earth to obtain a maximum crop of rye. If the weight of azote diminish, the yield will decrease according to a geometrical progression.

In the following table the maximum crops are represented by 100 for wheat, and 90 for rye. The yields obtained in the trials are indicated by figures representing grammes, on the opposite side of which are inscribed the theoretical yields calculated upon the basis previously mentioned:—

## 1ST, WHEAT.

1,000,000 grammes of earth containing assimilable azote.		Returns.	
Gr.	Obtained.	Gr.	Calculated.
70	100	70	100
56	77	56	80
42	64	42	60
28	41	28	40
21	30	21	30
14	19	14	20
7	7	7	10
2ND, RYE.			
63	90	63	90
56	74	56	80
42	54	42	60
28	43	28	40
21	28	21	30
14	20	14	20
7	9	7	10

The returns obtained are shown in abstract by decimals, to render the comparison more easy. The agreement between the real and calculated yields is so great that we may deduce the following law: In certain conditions of culture, the returns in rye and wheat are in direct proportion to the quantity of assimilable azote contained in the soil. M. Hellriegel adds that the results of experiments made with barley and oats were precisely the same; so that the same law will be applicable to all cereals, without distinction. We resume these important researches, in the practical knowledge we are constantly gaining on the trial fields.

The preparation of fodder is an important thing. The nutritive properties of hay vary in proportion to the manner in which it is prepared. Professor Voelcker recently published a paper upon the rational preparation of fodder, accompanying his observations by analyses which appear to us of real interest to practical farmers. It is evident that if we could prepare hay without modifying the composition of the plants harvested, we should obtain a dry fodder equal in value to the green grass from which it is made. Under the influence of the rays of the sun, clover and grass lose nothing but water, and their constituent elements sustain no injury if the plants are not too tender and if they are not dried too rapidly: the green colour, sapidity, and aromatic odour of hay well preserved sufficiently

attest this truth. The preparation of hay does not necessarily take away the nutritive properties from it; but many practical men maintain that there is less nourishment in hay than clover and other herbaceous vegetables in a green state; however, if that be true in nine cases out of ten, it is not absolutely necessary.

If artificial desiccation could be practically applied, or if we could even thoroughly superintend the desiccation in the open air, hay would lose none of its nutritive qualities; the green colour would be preserved, the watery particles alone evaporate, while the solid elements would remain in the hay just in the state they are found in fresh fodder.

According to an eminent English agriculturist, the alteration of grass during its transformation into hay may be traced in most cases to the following causes:

1st. Rainy weather prevailing for a long time after the fodder is cut; damp and half-dry grass often remains too long in heaps before it can be moved and spread.

2nd. Heating, from being put in heaps upon the soil.

3rd. Being cut at the wrong time—either too soon or too late.

When grass and clover are fit to cut, they contain a considerable proportion of sugar, gum, pectine, albumen, and other soluble substances, all of which may be washed away by heavy rains. Whilst grass is in a fresh state rain does not injure it, because the epidermis is clothed with a matter similar to wax or grease, which forms a sort of mantle against the rain. In consequence of the existence of this protective envelope, in may rain for a long while upon grass recently mown without much injury resulting from it; but it is altogether different when the plants have been turned several times and bruised by the rake. In that case the rain falls upon hay half-made, and it not only carries away the sugar, gum, and other soluble principles; but penetrating to the interior of the vegetable through the breaks in the cells, it causes a fermentation to take place, which if not promptly arrested may end in a considerable loss of nutritive matter. The sugar and soluble albumen—two most valuable elements—are destroyed by fermentation. It is therefore necessary in rainy weather to turn grass recently cut as much as possible, and in every case all necessary precautions should be taken during that operation to avoid tearing the fibres of the plant. Simple as the preparation of hay appears to be, it requires considerable experience to know exactly the conditions under which grass should be mown, turned, and put into cocks. It often happens that a farmer turns his hay upon a dull day, when the air being saturated with damp no evaporation can take place. At such a time it is not only useless but even injurious to turn hay half-dry, because by bruising it he puts it completely under the pernicious influence of the rain. It is a well known fact that hay badly dried in the meadows loses both in weight and quality when stored; but the nature of the injuries produced after it is put in cocks, or housed, through heating and fermentation, is not so well understood. It is principally upon these two points that Mr. Voelcker has directed his observations.

According to Way, the average composition of clover is as follows:

	Fresh.	Dried to 100 degs.
Water	16.60	—
Fatty matters	3.18	3.81
Albumen and analogous principles*	15.81	18.96
Gum, sugar, carburetted hydrogen (readily transformable into sugar)	34.42	41.27
Cellulose	22.47	28.95
Mineral matters	7.52	9.01
	100.00	100.00
*Containing of azote	2.53	3.03

These results represent the average of 75 analyses of clover and some other plants which are generally mixed with it: the plants accidentally mixed with clover presenting a variable composition, the figures we give must be regarded as merely a general indication. We must also bear in mind that the composition of fodder varies with the nature of the soil, the time of the harvest, &c. It is however certain that clover contains a little more water than grass, all things being equal;

and it is also a little more rich in sugar and carburet of hydrogen; but it differs mostly from grass by its strong hold of the azotized principles which tend to the formation of flesh in animals.

The average of 25 analyses of fodder, obtained from natural meadows, gave M. Voelcker the following results:

	Fresh.	Dried to 100 degs.
Water ... ..	14.61	—
Fatty matters ... ..	2.56	2.99
Azoteous matters* ... ..	8.44	9.88
Non-azoteous matters, sugar, gum, &c. ...	41.07	48.09
Cellulose ... ..	27.16	31.80
Mineral substances ... ..	6.16	7.24
	100.00	100.00
*Containing azote ... ..	1.35	1.58

Fodder made from clover or grass contains a certain quantity of sugar, quite formed, or of another soluble carburet of hydrogen, which, under the influence of ferments, is easily transformed—first into sugar, then into alcohol, and carbonic acid. The albuminous and other azoteous principles found in fodder, partly in a soluble and partly in an insoluble state, are equally important. It is by means of these substances coming in contact with the air that the ferments are developed which cause the decomposition of hay; and that explains why fodder which has been submitted to active fermentation generally loses its nutritive properties, because the materials destined for the production of flesh in animals is transformed into sugar, which destroys itself soon after. Sugar, we know, can only ferment in a sufficiently concentrated solution. The large quantity of water existing in fresh-cut clover or grass prevents fermentation, while, on the other hand, the azoteous substances do not permit the ferments to develop themselves till life has ceased in the vegetable—that is to say, when the cells and vessels, bruised by the desiccation, enable the liquids they contain to become mixed. In proportion as the plant dries and loses its vitality, the conditions favourable to fermentation increase. During the process of desiccation, hay contains at a certain time water and sugar in exactly the proportion required for fermentation.

The consequence of these facts is as follows: If through unfavourable meteorological circumstances the housing of fodder is interrupted, or the atmosphere remains damp for some weeks, the half-dry hay begins to decompose on the spot, deteriorates in quality, and becomes predisposed to heat in the stack. On the contrary, if the weather is fine and warm, so that desiccation takes place rapidly, the rate per cent. of damp soon falls so low that fermentation cannot take place. The hay remains upon the ground and cannot easily become heated, even though in reality it contains more water than fodder harvested in bad condition. The more rapidly hay is turned to the sun the less it will be bruised, and the greener it is the better it will resist fermentation when it is stored; nevertheless, it often happens that a too rapid preparation injures fodder, and in a good year hay appears to be saved in fine condition when in reality it is not. If hay be carefully and completely dried by the sun it never heats; a slight fermentation, far from being deleterious, is often very useful—in fact, we know that in such a case certain aromatic principles are produced which render fodder more sapid, and perhaps even sometimes more nourishing. As long as the green colour remains, the hay has lost none of its quality; when it is much heated it turns brown. Some cultivators prefer brown to green hay, and it is certain that the former frequently has more flavour and smell than the latter; but, though cattle prefer brown hay, it is not at all desirable to leave sufficient moisture in the fodder at the time it is housed to turn it brown, because the loss resulting from fermentation is not counterbalanced by the slight aromatic smell it acquires.

M. Voelcker says: "Some years ago I had occasion to examine some brown hay which possessed an aromatic smell like fruit; it had a palpably acid savour, contained no traces of sugar, but a great deal of pectine, some brown matter analogous to humus, and a small quantity of soluble albumen. The acidity, I proved by analysis, was due to the presence of acetic acid. The hay was broken, of a dark brown colour, and a chemical examination gave the following results:

Water ... ..	18.33
Fatty matters ... ..	1.70
Soluble albumen, corresponding to 0.31 of azote ...	1.94
Pectine, gum, extractive matter, traces of sugar ...	9.94
Acetic acid ... ..	1.93
Assimilable fibrine ... ..	23.01
Insoluble albumen, corresponding to 1.40 of azote ...	8.75
Cellulose ... ..	28.53
Soluble mineral matters ... ..	3.98
Insoluble mineral matters ... ..	2.59
	100.00

Now we know that the use of such hay as food for cattle must be injurious. Another time M. Voelcker had occasion to examine some clover which had heated from the centre of a cock that they were obliged to pull to pieces. It had been harvested in bad weather, and made into cocks when it contained too much moisture. When the cock was pulled down, a vapour escaped of a peculiar smell, which stung his eyes. The vapour exactly resembled that produced in the manufacture of vinegar, denoting the presence of aldehyde. The hay presented the following composition:

Water ... ..	38.02
Fatty matter ... ..	0.90
Soluble albumen, corresponding to 0.30 of azote ...	1.88
Gum, pectine, extractive matter, and traces of sugar ...	6.63
Assimilable fibrine ... ..	15.55
Insoluble albumen, corresponding to 0.30 of azote ...	8.12
Cellulose ... ..	22.33
Soluble mineral matters ... ..	3.96
Insoluble mineral matters ... ..	2.61
	100.00

To complete these interesting observations of M. Voelcker, we quote the following results obtained by Dr. Beyer. That chemist analyzed two specimens of clover saved from the same crop, one of which had been properly desiccated, whilst the other had been exposed to the rain for three weeks. A hundred parts of each of these clovers, dried to 100°, contained:

	Clover.	
	not wet.	wet.
Fat matters ... ..	3.225	1.010
Cellulose ... ..	36.200	39.866
Proteinic matters ... ..	11.872	8.662
Mineral matters ... ..	6.115	4.719
Matters deprived of azote ... ..	42.588	45.743
	100.000	100.000

That analysis showed that rain acts in an injurious manner, particularly upon the substances most important as regards alimentation, since the action of the water destroys the fatty and other protective matters, such as albumen, &c., which cover the stalk.

M. Beyer analysed also the ashes of these two specimens of hay. There was no sensible difference in their composition, but the rain had carried away a certain quantity of mineral substances. The potash, lime, and phosphoric acid were diminished one-fourth in quantity, and the magnesia nearly a third. The insoluble matters, which are certainly of very little value as food, were sensibly increased.

The preceding accounts show how much care is necessary in the cutting and saving of fodder. If the cultivator cannot completely guard against the inconveniences resulting from bad weather, he may at least draw from the facts we have reported some useful hints upon the accidents to be avoided, and the best methods of preparing fodder.

Amongst the problems, the solution of which presents the greatest interest to physiology as well as agriculture, the study of the chemical phenomena of nutrition occupies an important position. What influence has alimentation upon the raising and fattening of cattle? What transformations do the different aliments undergo in the bodies of the animals to which they are given? These are undoubtedly two of the grandest problems biological chemistry can resolve. The physiological laboratories at the agricultural stations in Germany have for the last ten years been the theatre of some most interesting researches upon this important subject. Voit, Fettekofer, Hennaberg, Stohmann, Kühn, and many other celebrated ex-

perimenters have already solved some important points of that complex mystery, nutrition, and the formation of fat, fibrin, &c., in animals.

The aliments introduced into the body of a living being are submitted to various modifications there, the effect of which is to render part of their principles assimilable, whilst the other matters, which are non-assimilable, are cast away under the form of feces and urine. The respiratory organs play an important part in these transformations; and the analysis of gas thrown off by the lungs has for a long time been regarded by physiologists as one of the most important principles to register correctly.

In spite of the works upon that branch of science, which we owe to MM. Regnault and Beiset, Beschoff, and Voit, Planet, Valentin, and others, up to the last few years, there still reigned much uncertainty upon the fundamental points of the question. The reason of this is that, before the construction of the large respiratory apparatus by M. Pettenkofer, to which we shall refer presently, the methods employed by these savans I have named, were very imperfect. In fact, there were two grand faults in all the processes in use up to the last few years, for studying the respiration of man and animals.

In the first place, the experiments were made under anomalous conditions—that is to say, not in places where the animals chosen for the study of the phenomenon of respiration were accustomed to live. For instance, they were generally shut up in confined spaces, where the air could only be completely renewed in summer.

In the second place, another unfavourable circumstance was that none of the methods employed could be controlled. The state of our knowledge upon that point, then, required for the complete solution of the problem, an apparatus into which the man or animal submitted to experiment could remain twenty-four hours or more, without inconvenience—a chamber where they might walk about, eat, and sleep with ease—in fact, live without constraint, and in their usual condition.

It is also necessary that the air should be suitably renewed, and that that air be analyzed at its entrance and exit, and should be measured exactly. By that means the dose of carbonic acid, vapour of water, and other gaseous products exhaled from the lungs and skin could be obtained by taking the difference in the quantity of these elements existing in the air before and after its passage into the apparatus. An analysis made under such conditions would be very advantageous, as it would remove the causes of error in the dosage of carbonic acid and water, since those causes, of little consequence otherwise, influence the analysis of gases equally at their entrance and exit.

M. Pettenkofer's apparatus possesses all these advantages. With the help of it, immense works have been accomplished by M. Voit and other experimenters. We should like to make known to our readers the important results of these works; and in order to do so thoroughly, it is necessary to commence with a description of M. Pettenkofer's apparatus.

When on a journey through Germany, Professor Henneberg, manager of the station at Weende, kindly allowed me to witness an experiment made upon two sheep. I was thus enabled to judge the correctness of the method, and hope to be able to give a clear idea of the apparatus and manner of dosing the carbonic acid, water, hydrogen, and marsh gas, though here I am at fault, for want of a representation.

It is an important question, and one many times discussed, without however arriving at any positive solution—to know in what proportions, and how often, the air in which a man or animal is kept, should be renewed, in order to enable him to live conveniently and without disordering his functions. First let us state that the quantity of air necessary to a man varies generally with the physical disposition and temperament of the individual. Conclusions have been drawn relative to the renewing of air, from the quantities of oxygen, carbonic acid, and aqueous vapour contained in the air confined, which our daily experience and individual impressions frequently deny. All we know upon that point is, that in order to breathe easily in a confined space, it is necessary that the air of that space contain a much greater quantity of oxygen than is consumed in the act of breathing, and much less carbonic acid and vapour than is exhaled from the lungs and skin. What renders the air of a room crowded with people heavy and disagreeable, acts

upon the nervous system, and produces that uneasiness the effects of which vary from the simple headache to syncope, is not the heat alone, but the hygrometric state, the carbonic acid or want of oxygen in the air; in fact such an atmosphere seems to us enervating and poisonous, before being saturated with steam of water, having lost a quantity of its oxygen, and containing more than 1 per cent. of carbonic acid: the air is much the more disagreeable to us that it has been respired a greater number of times, because it is then charged with organic emanations thrown off by the skin and respiratory organs. It is thought that many of the vapours produced by the organism possess a very weak tension, so much so that the air is quickly saturated by it, and thus rendered unfit for respiration.

It is therefore evident that the experiments made upon animals in an atmosphere not entirely renewed, but only modified by the addition of oxygen at different times, and the absorption—by any means whatever—of the carbonic acid exhaled by the animals, does not present the necessary guarantee for correctness. On the other hand it is not necessary that the air be renewed indefinitely: it should be only in certain limits, as M. Pettenkofer has empirically endeavoured to establish. He determined what quantity the carbonic acid produced by respiration and cutaneous perspiration must exceed, in an apartment sensibly well aired, the weight of the same gas existing in the free air, before the organic emanations which accompany the rejection of carbonic acid from the skin and lungs act upon the sense of smell in an unpleasant manner. It was found that the proportion of carbonic acid, which in free air is, as we may say, 6 volumes in 10,060 nearly, may rise under the influence of the respiration of a man in confined air to 1 volume in 1,000 before that air acquires a disagreeable smell. As I said before, it is not the excess of carbonic acid to which we must attribute the deterioration of the air: we can only use that term comparatively to determine how many times the air contained in a room has been introduced into the lungs and rejected by them. In fact we may live very easily in an atmosphere containing 1 per cent. of carbonic acid, upon condition that the gas be obtained by chemical means. On the contrary, stopping in a place, the air of which contains 1 per cent. of carbonic acid, proceeding from respiration and perspiration, would be almost unbearable. The most infected air of prisons and barracks, &c., rarely contains more of it. Under almost any circumstances, the volume of air per hour necessary to a man rises to 60 cubic metres. M. Pettenkofer arranged his apparatus in such a way that he could introduce into his experimental room quantities of air that might be made to vary from 15 to 75 cubic metres per hour; the latter volume is sufficient for the largest animal that could be subjected to experiment.

I now come to the arrangement of the apparatus that I saw worked at Weende. The room destined to receive the man or animal is very nearly cubic; its volume is 12.7 m.; the surface of the floor is 5.452 m. The air is renewed by means of a ventilator, placed in such a manner that the current of air resulting from that renewal can never be inconvenient to the individual placed in the room. In fact it is only when the rapidity with which the air rushes into a place reaches 1 metre per second, that we find any unpleasantness from the current. Now, when M. Pettenkofer makes it 15 cubic metres per hour, the speed of the air entering is only 8 millimetres per second, and it only attains the figure of 0.0208 m. per second when the ventilator sends into the room 75 cubic metres per hour. We can easily estimate the changes of the volume occurring in the room from the presence of the man; in fact the variations due to pressure, temperature, and the hygrometric state, may be measured by the help of a barometer, thermometer, and psychrometer; besides which, the water may be collected and weighed.

It is not so easy to estimate directly the quantity of oxygen derived from the current of air by the act of respiration; but the observations of MM. Reynault and Reiset, Vierordt, Hutchinson, and others enable us to form some ideas on that subject, which at least border on the truth. The greatest part of the oxygen carried into the air by respiration in twenty-four hours, is thrown off under the form of carbonic acid; and, as a volume of this latter gas is per se equal to the volume that the oxygen it contains would occupy in the free state, it follows that there is no change in the volume of air which in the oxygen of that fluid serves only to the production of carbonic



acid. We know further that the volume of air expelled is rather smaller than that inhaled, because a part of the oxygen goes to the formation of steam and other oxygenized combinations.

If we admit that the mean volume of air introduced into the lungs by inspiration is equal, with a man, to 5 litres per minute, or 300 litres per hour, we find, by depending upon the numerous determinations of MM. Brunner and Valentin, that the average proportion of carbonic acid in the air expelled is  $m. 0.230$  per minute, or  $13.8$  per hour. By supposing that carbonic acid only represents two-thirds of the oxygen that has vanished, and that the third remaining served entirely for the production of water and compound oxygen, we have a diminution per hour in the volume of air inhaled in regard to that of the air expelled, which does not exceed 6.9 litres. If the volume of air in which a man has breathed for an hour is only equal to 10 cubic metres, the mistake committed by not taking count of that diminution will not be 1-19th per cent. It is therefore entirely negligible.

M. Pettenkofer, after having thoroughly studied those different questions, a previous knowledge of which was absolutely necessary, agreed upon the following dispositions for his apparatus: The air is measured at nearly 1-1000th of its volume, when it comes out, by a gasometer very carefully constructed. The ventilator constructed so as to introduce fresh air into the room at call, is worked by a small steam-engine. Some currents of air distributed laterally on the walls of the room enable the chemist to collect and analyze any quantity of gas that he wishes, at any stage of the experiment. The carbonic acid is dosed by a new process, which rests upon the rise of a liquor, called "baryta." That method of dosage, according to M. Pettenkofer, gives results that could not be obtained with the best scales, and enables the experimenter to discover the presence of 1-900th carbonic acid in a liquid.

The proportion of aqueous vapour is estimated by the help of sulphuric acid placed in tubes of a peculiar form, which I cannot here describe. The proportion of hydrogen and marsh gas contained in the air expelled is found by determining the excess over the normal quantity of carbonic acid and water, furnished by the gas previously thrown off from the body and conducted through a system of tubes lined with platina and heated red hot.

The great advantage that M. Pettenkofer's method possesses over others is, that it enables one to examine by direct experiments the results that it furnishes: the author has tested this many times.

By burning a certain weight of a fat body for a given time in the experiment-room—stearine for example—the composition of which is well known—the quantities of aqueous vapour and carbonic acid resulting from that combustion may be dosed, and compared with the weight of the same bodies obtained in the analysis of that substance by methods as exact as organic chemistry now possesses.

The figures I shall presently give leave no doubt as to the correctness with which M. Pettenkofer's apparatus works.

In five experiments where different quantities of pure stearine were burnt, in the room of the apparatus, the quantity of carbonic acid produced was dosed. Column 1 represents the quantities found experimentally, and column 2 the real weight of the same as given by direct analysis of the same quantity of stearine:—

Experiments.	1.		2.	
	Carbonic acid found.		Carbonic acid realised.	
1 ... ..	...	289.0	...	296.7
2 ... ..	...	229.0	...	229.1
3 ... ..	...	590.0	...	590.0
4 ... ..	...	286.0	...	288.7
5 ... ..	...	606.0	...	606.0
		2000.0		2070.5

The results obtained are between them in the proportion of 100 to 99.7. Such precision naturally inspires us with great confidence in M. Pettenkofer's method; it proves that his apparatus is as perfect as possible, and if we remember that to such exactness in the dosage of gases from respiration, the mode of experimenting adopted by the author, joins the possibility of putting a living being under experiment in conditions altogether analogous to those he encounters in ordinary life,

we may easily judge how valuable this new method will be to physiology.

I may add that the very extensive dispositions of the apparatus enable the experimenter to collect the urine and excrements of the animals under experiment, without any loss. We see that, thanks to M. Pettenkofer, we can now trace from point to point the phenomena of nutrition in animals while they are living in their normal condition. On the one hand, we can analyze all the products of respiration and cutaneous perspiration; on the other, we can collect all the matters not assimilated, and rejected in the form of feces and urine. The animal, weighed before its entrance into the apparatus and when it is taken out, receives a certain quantity of fodder, or any other kind of food; the manger is constructed so that none of the food can be lost, therefore all the conditions of the experiment are faultless.

At a future time I shall be able to show by accounts rendered what great progress has been made in the study of the raising and nutrition of cattle by the method I describe. At present I must limit myself to pointing out, in conclusion, the very curious and unexpected results shown by MM. Pettenkofer and Voit in their experiments upon the respiration of a man. These gentlemen discovered, in the gases proceeding from the respiration and cutaneous perspiration of animals, notable quantities of free hydrogen and proto-carbonated hydrogen (marsh gas) (1).

(1) It may be useful to remark that in order to gain the full value of that experiment, it should be proved that the carburetted-hydrogen dosed by these gentlemen did not proceed from intestinal gases.

The results of five experiments are as follows:—

Experiments.	Hydrogen.		Marsh gas.	
	Grammes.		Grammes.	
1... ..	...	7.2	...	4.4
2... ..	...	5.2	...	0.3
3... ..	...	7.2	...	4.7
4... ..	...	6.4	...	3.7
5... ..	...	4.3	...	4.6

These quantities relate to the products of respiration of the animals which have been kept a month or twenty-four hours in the experiment-room. MM. Pettenkofer and Voit have assured themselves, by certain tests, that these gases are due to the animals placed in the apparatus, and not pre-existing in the air introduced into the room by the ventilator. In order to confirm their opinion, they dosed the carbonic-acid and water contained in an enormous volume of air not calcined, then in the same quantity of air previously calcined, when the following results were obtained. In the first trial, during which 232,336 litres of air traversed the apparatus, they found in 1000 litres of air,

	Carbonic-acid.		Water.	
	Grammes.		Grammes.	
Calcined air ... ..	...	0.6782	...	10.9301
Non-calcined air ...	...	0.6776	...	10.9096

In the second experiment, which, like the first, lasted twenty-four hours, and carried over 228,516 litres of air, 1000 litres of air gave,

	Carbonic-acid.		Water.	
	Grammes.		Grammes.	
Calcined air ... ..	...	0.6440	...	10.6609
Non-calcined air ...	...	0.6444	...	10.6207

This proved that the air introduced into the apparatus did not contain any appreciable quantity of compound carburet, except carbonic-acid. In fact, in the first case after twenty-four hours test they discovered the presence of 0.75 grammes of hydrogen in 232,336 litres of air, or nearly 0.003 grammes per cubic metre.

In the second case 228.516 litres of air gave 1.02 grammes of hydrogen, or nearly 0.004 grains per cubic metre.

These figures, apart from the very curious result itself, show us how very exact M. Pettenkofer's method is, and how perfect the apparatus employed must be. In order that our readers may have an opportunity of learning the methods employed at Munich and Weende, I purpose at some future time touching upon the experimental results obtained by MM. Voit, Henneberg, Stohmann, and their disciples, in studying the nutrition of animals.

L. GRANDJEAN,  
Doctor of Science and M.D.

## THE ROOK.

The rook, a bird as much abused as if the whole business of his life was to rob and plunder; when the fact is, with the exception of seed-time and a very few weeks before harvest—that is, when the corn is ripening—he lives almost entirely upon worms, grubs, and caterpillars. Anyone who doubts the utility of the rook should consult Richardson on The Pests of the Farm, and he will soon come to a conclusion in their favour. This bird has peculiar instinct in discovering those pasture lands that are infested, and he will select the tufts of grass under which those concealed enemies lie. We have frequently seen, in a dry season, a piece of pasture which looked as if a heavy pair of harrows had been passed backwards and forwards over it, so numerous were the tufts of dried grass that lay upon the surface. But for the rooks there would have been no grass left! It was by the withered appearance of the tufts that the birds were enabled to judge of the pasture being attacked by the grub; and *only* those tufts were pulled up. On the estate of Mr. W. Oliver, the rooks were destroyed on this very account; but, on killing an old rook and examining his maw, there were found 19 large grubs and 17 wireworms: and this has been repeatedly the case where rooks have been shot during the season when the grain is not ripe. Why, for instance, does the crow follow the ploughman so industriously at his very heels, except to pick up the food in the shape of grubs, wireworms, slugs, with which alone they feed their young? The experiment has been tried to destroy or banish these birds, but it has always been a cause of bitter regret, for the immense increase of the insect tribes that followed their absence inflicted infinitely more injury than the rooks themselves would have done. Such is the case at this very moment in France, where, owing to the war waged against the birds, the communes are paying for the destruction of the cockchafer which in myriads are now ravaging the fields and woods.

It is true that the rook is a very cunning bird, and when attacking a corn-field, sentinels are always posted on the outskirts, to give notice of the approach of a gun, for he cares for nothing else. A boy, being provided with a pistol and powder *only*, was scolded for still allowing the rooks to commit their depredations. "Ye maun gie me lead," he replied; "for a wheen o' thae auld craws would sit on the vera point o' a pistol, gin I would let them." They must therefore be kept in check, as we have said, during seed-time and when the crops are ripening *only*, for at all other seasons of the year their food is insects, and the amount devoured in the neighbourhood of a numerous rookery is prodigious, while the good effected far more than makes amends for any other mischief.

What we have said of the rook may be repeated in the case of small birds—the larks, sparrows, and chaffinches; but for these the smaller insects—caterpillars, wireworms, and aphides—would devour all vegetation. Like the rooks, their young ones are entirely fed with insects, and until the grain is ripe their own chief food is the same. Still the sparrows and larks, however, must be kept in check, as well both to prevent an undue increase in their numbers and to guard the crops from their depredations; but to destroy them, as was the practice in France and Germany a few years since, would be to leave the corn to enemies whose increase would bid defiance to all other methods for their destruction. Sparrow clubs are a grand mistake, and, in this country, can never become an institution, because science has come upon the farm, and taught the farmers that the very nature of those birds is conservative of their crops. The times when both these and the rooks are

most troublesome are precisely those at which, owing to the plough not being at work and the insect tribes having executed their commission, their natural and favourite food is less plentiful than at other seasons of the year. The larks require looking after at wheat seed-time, being very destructive just as the young plants are pushing their stems above ground. But at other seasons of the year they devour immense numbers of the seeds of weeds, and insects. Being gregarious they leave the lands near the coasts in the early winter and congregate in the interior, where they infest the newly-sown fields, and commit sad havoc upon the springing wheats. They must, therefore, be looked after at that time of the year; while at others, when they are scattered about the country in pairs, they are far more beneficial than injurious.

But it is not the corn crops alone that are saved by the feathered tribe from the depredations of insects. The orchards and gardens are by them protected from the same enemies, which never fail to appear as soon as the summer has tempered the atmosphere. We have frequently known the small birds banished from the gardens under the charge of being there to devour the fruit, when the real object was the caterpillars and other insects which had made a raid upon the fruit-bushes and trees. The mischief done by the latter is incalculable, because the destruction of the foliage of a fruit-tree or bush involves that of the fruit. Nor are the woods themselves exempt from similar attacks; and if the woodpecker and the tree-creeper, with their strong beaks, drill holes in the bark of the trees, it is to extract the grub that lies concealed under it, and which would eat into the stem, and thus promote premature decay.

## THE ENGLISH SPARROW.

In the spring of 1866, four pairs of the English sparrow came to Union Square Park, and there built. Three pairs occupied the trees; one ejected a wren from her little house, the only bird-house then in the Square, and took possession; a fifth built in the ivy of Dr. Cheever's church, facing the Square. The industry of these little fellows in devouring the measuring worm—(so great a nuisance that most persons avoided passing through the Park, preferring to go around during their occupancy, and so numerous were they that they did not leave a leaf on any tree except the alanthus)—was such that boxes were provided on almost all the trees for them. They are very prolific, those hatched in the spring rearing a brood in the autumn and the old pair rearing four or five broods. In one year they increased from five pairs to a flock of seventy. The Park-keeper now estimates them at 600, making over seven-fold increase yearly. Last summer a reward of one dollar a head was offered for worms, but the birds had eaten the last one—they also eat moths, grasshoppers, and many other insects, and they are very fond of bees, which I consider a sinful appetite. Thus far these birds have benefited the city, and have extended to about 40 miles in every direction. The estimate that they destroy in Europe one-half million bushels of grain is probably correct; but how much, more or less, would the insects they devour destroy? The question is simply, which is the greater evil, worm or bird, and which most readily controlled? I have somewhere read that in one of the provinces of France a reward was offered for the heads of sparrows, owing to their depredations in the grain fields; in a few years the grain was more injured by the insects which these birds eat, than the birds ever consumed: it amounted to an almost total loss of the crop. The reward ceased, and in a few years they had an increase of birds, and a decrease of injurious insects. We can control the number of birds by protection, poison, or gun, and they can catch worms much faster than we can.—*Correspondent of Country Gentleman.*

## A WORD FOR THE CROWS.

That the rook may be fairly classed as one of the "pests of the farm" has long been a settled article of belief among farmers generally. At certain seasons the most careful watch is maintained against the supposed depredations of this much-abused bird; powder and shot are liberally employed in order to thin their numbers or frighten them from the locality, and the old clothes bag is rummaged to provide material for the purpose of dressing up "something like a man," which when placed in the field is expected to strike terror into the thievish breasts of the black-plumaged invaders.

It is of considerable importance to know whether such proceedings are justifiable or not; for it is quite possible that in condemning the rook to destruction we may be guilty of performing the not uncommon feat of jumping at a conclusion, and depriving ourselves of the services of a friend, while we imagine that we are getting rid of an enemy.

That farm crops frequently suffer severely from the attacks of various insects is a well-known fact, and it is equally well known that those insects form a description of food very acceptable to birds of various kinds. Were it not so, our fields, our gardens, woods, and orchards would soon become utterly destroyed, and the pleasant verdure which everywhere greets our eyes would be succeeded by sterility. This is the result in many parts of the world where vast numbers of locusts destroy every kind of vegetation, so that although "the land is as the garden of Eden before them," once they have passed, "behind them is a desolate wilderness." It would just be the same with us if the depredations of insects were not met by counter-checks which restrain the destruction caused by them within due limits, and of these checks birds are the most efficient. Very striking proof of this has been obtained in France, where small birds have been almost exterminated, the sporting proclivities of our Gallican neighbours being amply satisfied with such small fry as sparrows, larks, &c., and the result is that the growing crops have suffered to a serious extent from the attacks of insects, the damage done being perceptibly greater as the destruction of small birds has become more general and complete.

Now, although such an opinion may appear heterodox to some of our readers, we must declare in favour of the crow as the friend, and not as the enemy, of the farmer. No doubt, crows may become too numerous—but that may be easily provided for—and some damage may be done by those birds during seed-time and harvest, especially at the former season, when they are eager in the search for insects; but the damage is more than counterbalanced by their services as insect-destroyers. Speaking from experience gained in the immediate vicinity of extensive rookeries, we are prepared to say that the damage done was infinitesimal in amount compared with the benefits we derived from our noisy neighbours. Neither in our own case, nor in that of any of the adjoining farms, do we recollect of injury to growing crops from "grub" or similar pests, whilst those who were indefatigable in their exertions to restrain the insectivorous propensities of the rooks, by frightening them away, had the usual complaints to make of damaged crops. We have heard it alleged that crows are such cunning birds that they take good care not to commit depredations near home; but may not this arise from a scarcity of insect-food in the vicinity of the rookery, causing them to fly to a considerable distance in order to obtain that which their diligence has rendered scarce in the neighbourhood of their roosting and breeding places? On one occasion we remember seeing a large tract of outlying natural pasture literally black with crows, and being curious to know what was the cause of such an assemblage, we found, on proceeding to the spot, that the crows had pulled up the fog, which was plentiful in that place, evidently in search of small grubs, of which there were considerable numbers where the crows had not been at work. On leaving the place, the crows, which had only retired to a short distance while we were examining the ground, speedily returned and resumed their very useful labours. We took particular notice of that piece of ground during the season, and a decided improvement in the pasture was distinctly visible.

Scientific men who have studied the habits of birds and insects are unanimous in the testimony which they bear to the value of rooks as destroyers of noxious insects; and although science has not as yet made sufficient progress amongst farmers

to enable them fully to appreciate the benefits derived from the existence of a pest police-force like the crows, yet there are many practical men who do not require to be told that the crow is their friend, not their enemy. Notwithstanding all our investigations into the economy of the animal world, we know but little of the intimate relation of the various tribes of creatures to each other, and of the general plan of nature. All the classes of the animal kingdom have so close a connection with and dependence on each other, that the removal of any link in the chain might produce results of serious importance to man. Let us, therefore, be on our guard not to disturb the harmony which exists in nature, and before the farmer again puts the gun to his shoulder, let us ask him to acquaint himself a little with the natural history of insects, which we have no doubt will disabuse his mind of all his prejudices against the rooks.—*Irish Farmers' Gazette*.

## THE TRIAL OF THE ROOKS.

At a recent meeting of the "East Lothian Agricultural Club," Mr. DURIE, Barney mains, in speaking to a motion, of which he had given notice at last meeting, as to the desirability of diminishing the number of crows (rooks), said that he was certain that crows did an immense amount of damage to every farmer in the county. Mr. Scott Skirving and other friends of the crows said that they killed vermin. No doubt they did; but if they could put the amount of damage against the amount of good they did, the balance would be found to be on the wrong side for the farmer. He did not want their entire extirpation, but simply that they should be kept down, say to about half the number there were at present. He moved a resolution to the effect that the club was of opinion that the number of the crows should be diminished, and that the proprietors should be communicated with, in the hope of their taking means to destroy them in their districts.

The CHAIRMAN stated that many years ago an application was made to the Earl of Wemyss to allow persons to kill the crows in Anisfield Park. His lordship gave orders that every one should be killed, and 30,000 were supposed to have been destroyed in two days. From that day to this not a crow had been allowed to build in the Park. He did not think the crows were so plentiful in the county as they once were, but they were still too numerous.

Mr. MILL, Lgate, said he really thought that to a large extent the crows were the farmer's friends. They preserved the crops from grubs, and he thought it would be for their advantage if magpies and hawks were allowed to live, as they were many years ago, for the purpose of keeping down the small birds.

Mr. ELDER, Bearford, thought crows kept in a limited number would do good, but not in their present number. He knew that crows were fond of worms and grubs, but he also knew that they liked wheat, especially when coming through the ground. They might sow to the extent of a bushel of wheat less per acre but for the crows. If those who spoke in favour of the crows had visits from as many of them as he had, they would have a different opinion.

Mr. ELLIOT, Abbey Mains, seconded Mr. Durie's motion.

Mr. JENKINSON, Kidlaw, said that the crows "harried" a great number of the partridges' nests; otherwise he had never seen them do any harm.

Mr. SMITH, Whittingham, said his opinion was not confined to this district that the crows were very destructive. They took up, for instance, seed potatoes when they were planted. He had known them carry off these potatoes in their bills, and drop them when pursued. Whatever might be the natural food of the rooks, he thought it was evident that they had "a crap for all corn." Whatever magpies did, it was well known that rooks destroyed eggs to a large extent, so that he did not think it would require much persuasion to get gamekeepers to promote their views.

Mr. MILL said he never in his life saw crows attacking ripe grain; he had seen it many a time, however, destroyed by wood-pigeons. He never in his life saw crows on a stock.

Mr. BELFRAGE corroborated Mr. Smith's opinion as to the damage inflicted by crows in potato fields.

The CHAIRMAN said a celebrated naturalist had stated that

he would be obliged to any gentleman who could tell him that he ever shot a crow and found a grub in it, averring that they did not like the grubs.

Mr. PATON, Standingstone, said that he would much rather have partridges and small birds increased than the continuance of the present number of crows.

Mr. WYLLIE, Bolton, stated that the crows in seeking the grubs pulled out the plants. He thought that instead of looking to crows for the destruction of vermin they should apply the manures which would accomplish that object. He had seen thousands of crows sitting on stooks, and found many of them, which could not be taken in for some days on account of the wet, reduced to mere chaff.

Mr. Durie's resolution was then unanimously agreed to.

## WAR WITH THE COCKCHAFERS.

War! civil war in France, has begun. War with fire and—no, not with sword, nor Armstrong guns, nor needle rifles or revolvers, nor any other of those weapons of war which the nations of Europe are multiplying. The warfare here referred to leaves all modern conflicts in the shade as to the number of lives sacrificed, and contrasts strangely with these as to the character of the combatants and the weapons employed. The war is against an invading army of cockchafers (*hannetons*) with which the forests in certain of the départements of France have been infested; and so numerous have these plagues proved, that the authorities have determined to pay for their destruction, at the rate of so many francs per 100 kilogrammes (220lbs.), the persons employed being the women and children. So injurious had these insects become in 1866, that in the Département of the Seine the damage was estimated at 25 millions of francs (£1,000,000 sterling), and in 161 Communes it amounted to 2,632,700 fr. (£105,308 sterling). Not only were the forest trees of every kind, but principally the oaks, subject to their ravages, but the fruit trees and vegetables and even the cereal crops have been attacked and in many instances completely destroyed. In short, if the chafers be left undisturbed, they bid fair to be as great a scourge in Western Europe as the locust is in the East.

The cause assigned for the rather sudden appearance of these insects is the prohibition of the pasturing of swine in the forests, which was formerly free to those who resided in the vicinity. These animals, by their peculiar instinct and habits, were enabled to discover and turn out the white-worms, or grubs of the cockchafer, which are deposited in the soil, by which means their numbers were kept under. Their number is also ascribed in part to the dead leaves being left to decay on the ground, instead of the farmers and peasantry being allowed to collect and carry these away. By such means the surface of the ground is kept in a soft state, favourable to the deposition of the grub, or rather the eggs, of the cockchafer. Several of the *arrondissements* have, by their agricultural committees, offered prizes of silver and bronze medals, to be presented to those mayors who have been most active in promoting the destruction of the cockchafers. Some of the farmers are paying at the rate of 20c. or 2d. per kilogramme (of about 2lbs. 3 oz.), and one report from Barbaru states that up to the 4th of May 3,539 kilos. had been destroyed in four days. The number in each kilo. was 1,200, so that in this one case not less than 4,246,000 cockchafers were thus killed in four days. Had these lived they would have produced 30 eggs each, or 127,404,000 grubs, which in time would have become perfect beetles or cockchafers. There are only two hours in the morning in which this chase can be pursued, namely, just before sunrise. At that time the insects are sleeping, and being shaken from the

boughs of the trees, fall like lead to the ground, and are in that state gathered up and thrown into boiling water, and afterwards on the dunghill or manure-heap. The number given above as accounted for was in one parish, or commune, alone; it may, therefore, be conceived what must be the immense numbers in the whole of France, for it appears to be distributed into almost all of the Départements. We may state that the whole were taken by children and women, who thus earned, in English money, £27 10s. in four days. Similar means have been adopted in many other Départements, and with equal success.

There is no doubt that the prohibition of pasturing the swine in the forests by the 86th article of the *code forestier* has largely contributed to the increase of these insects. But in addition to this, the destruction of the small birds in France may have something also to do with it. The eggs of the cockchafer are deposited slightly under the surface if the soil is moist; and when hatched by the sun, the young worm buries itself deeper, and remains in the ground three years before it comes forth a perfect insect. It is not difficult to account for the immense numbers that have appeared in France this season, the weather having been peculiarly favourable to their production. In point of fact, naturalists and meteorologists have predicted their appearance in force this year, and have proved correct in their anticipations. The Imperial and Central Society of Horticulture of Paris has requested the Minister of Commerce and Agriculture to make the *hannetonage* (the destruction of the cockchafers) compulsory on the authorities of the different communes and départements, while a spontaneous movement by a great number of Councils-General have been instituted for raising the necessary funds to pay for their destruction. On the other hand, measures will be taken to reinstate with the occupiers of land in the neighbourhood of the forests the privilege of again feeding their swine in them, as one of the most obvious means of lessening the evil in future.

The United Kingdom has, happily, been exempt from this scourge for many years. In the year 1688, one-hundred-and-eighty years ago, so immense a migration of cockchafers took place in Ireland, that the air was darkened by it for a whole league, and it was difficult to travel along the road. Our exemption from them is probably owing to the destruction of the forests and the more frequent and perfect cultivation of the land. The white worms, or rather the eggs of the insect, are deposited in arable lands as well as in the woods, and when turned up by the plough are picked up by the crows, rooks, and other birds. The rooks, however, take the matter into their own hands in the case of the pasture lands, which are greatly liable to be undermined by the grubs. Every tuft of grass that has one under it is pulled up by the rooks. All the birds of prey are enemies to the insect tribes; but the rooks are the most domestic and numerous, and therefore are the most efficient. In the meantime the authorities are actively engaged in the employment in France of the means for destroying the cockchafer before they have deposited their eggs, which is a few days or hours after impregnation.

England is still far from being closed against an invasion. Certain favourable states of the atmosphere might bring a "cloud" of them, similar to that which appeared in Ireland. There is no calculating the power of insects for flight. The black turnip-fly, one of the most destructive insects on the farm, is apparently also one of the weakest on the wing; and yet, as is well known on the east coast, they come across the sea in clouds, and, exhausted by the effort, they lie in heaps upon the land adjoining the shore until they have recovered themselves. In this case, undoubtedly, they exercise an unerring in-

stinct, which serves them instead of actual knowledge, to avail themselves of a favourable wind to wait them to a country with which it is impossible for them to have any previous acquaintance.

## ABYSSINIA AND ENGLISH AGRICULTURE.

When the Roman Empire was in the zenith of its power Northern Africa was the chief source from whence Rome received her supplies of wheat and other agricultural products, and at the present time England imports no inconsiderable portion of her breadstuffs from the same quarter. Such being the case, the question just now naturally arises, Will our recent military visit to the capital of Abyssinia produce any effect in *Mark Lane*? The present Viceroy of Egypt has done, and is doing, much to stimulate agriculture throughout his dominions. Will this enterprise extend itself from the Mediterranean to the Indian Ocean along the Red Sea inland, as far as the tributaries of the Nile drain Eastern Africa, to which may be added the vast countries recently explored by Dr. Livingston? There are, within the large area of land thus imperfectly charted out, numerous tribes apparently emerging from a state of the rudest barbarity, who promise at no distant day to turn their industrious energies to the successful production of corn and cattle, flax and cotton, in greater abundance than they themselves require. Are we justified in looking to this vast area of the globe for increased supplies of such productions? And what influence will such supplies have upon English agriculture?

The latter question may at once be dismissed with a single stroke of the pen. Indeed, the English farmer (if we may for the sake of argument suppose an example) who apprehends any damage to his pockets from Abyssinia is something more than credulous. At the same time, although no overflowing rivalry in the English market is ever likely to come from this source, yet many eyes at the present time are turned to the agricultural capabilities of this hitherto much-neglected region of the globe.

The subject may briefly be considered under the following four heads—viz.: 1, Corn, including fruits of every kind, produced in Eastern and Southern Africa; 2, Cattle; 3, Flax, cotton, and other fibrous material for textile manufacture; and, 4, Timber, minerals, &c.

1. Of the first class of articles, Egypt may be taken as furnishing a parallel example for illustration over a large area of the country in question. Farther southwards, there must be added, these productions grow under a more vertical sun, some of which appear to be peculiar to Africa. On these latter, however, we do not intend to say anything; corn and pulse crops, with flaxseed and other seeds, linseed-cakes and cottonseed-cakes, being the articles chiefly interesting to the readers of the *Mark Lane Express*.

As yet there is not much prospect of permanent peace being established amongst the Nubian, Abyssinian, and Galla tribes; at the same time the recent campaign, from its having been attended with such singular success throughout, must produce a movement in this direction; so that the happy fruits of peace on a permanent basis may be reaped sooner in Abyssinia than some imagine. It will also, no doubt, give a fresh stimulus to agriculture in Egypt and in the whole country drained by the river Nile, for the inhabitants of the whole of this vast area of corn-and-pulse-producing land have become sensible to the potent efficacy of English gold. A thousand prejudices may erase from their minds the perseverance of the English soldier in cutting his way from the Red Sea to Magdala, but the sterling money left in the country amongst those engaged in the cultivation of the soil will tell its own silent tale long after our troops have returned to India and Britain. It may safely be concluded that, once show them that England is ready to relieve their markets of superfluous corn on advantageous terms, and many times the present quantity of corn produced will be grown.

The proposition is fully sanctioned by the experience of the British army in that part of the country through which it marched—a part not the most favourable to the growth of

corn; but the carrying out of the proposition into general practice is another and a totally different thing. What corn-merchant, for example, would, as yet, think of taking up his residence at any of the military stations of the British army, or market-towns visited by it, between Zoula and Magdala? But this question may be summarily disposed of; for the work, begin when it may, must proceed inwards from Egypt and the Red Sea by degrees, as Time and Progress lead the way. Were the chiefs of Shoa and Tigre to shake hands to-morrow, and peace to be established on a permanent basis, Egypt would not send us one quarter more wheat, the produce of next harvest, on that account. But were peace thus firmly laid on a solid foundation, more wheat would actually be grown in Abyssinia next year; and the surplus would eventually find its way, through Egypt, either by the Nile or Red Sea, to the English market; for the British corn trade has its emissaries throughout the whole of Egypt, accessible by the Nile and Red Sea; so that, were they to find supplies on easier terms farther up the country, or farther inland, the upshot may be taken for granted, however inconsiderate in magnitude supplies may be at the commencement. Compared with much of Russia, Turkey, and America, the prospects of trade are every whit as promising eventually.

Oil-producing seeds, and roots and feeding materials for cattle, are in great request in the English market; and articles of this kind could obviously be obtained in much greater abundance from the southern or upper provinces of Egypt than is now imported; and this trade could be extended to Abyssinia and to Southern Africa, via the Zambesi, in the course of time. There is no use in grumbling at the high price of oilcake, so long as the supply continues short of the demand; but if the imports from Eastern and Southern Africa can be increased—as doubtless they may—the commercial balance would turn in favour of the English farmer.

2. Although many of the tribes of Eastern and Southern Africa are pastoral in their habits, it is nevertheless problematical if they can ever send through Egypt either live fat stock or dead meat to the English market. At the same time it must be borne in mind that the country is more accessible than either Australia or South America, from both of which we now begin to receive supplies of preserved meat in tins. In the present transition state of things it would therefore be premature to speculate as to what the future may produce. A part of the country is infested with the "tsetse" fly of Dr. Livingstone. The tsaaltal, or Abyssinian spear fly of Bruce, very emphatically alluded to by the prophet Isaiah (xviii. 1): "Woe to the land shadowing with wings, which is beyond the rivers of Ethiopia;" a passage which has been translated, "Woe to the land of the tsaaltal fly, which is beyond the rivers of Ethiopia." So destructive is this fly to horned cattle, that they cannot be bred in the districts infested by it, so that were it to extend its ravages the consequences are not easily estimated. And, besides, it is very questionable if the quality of African meat would suit the taste of the English consumer. True, Australian and South American meat have each the peculiar flavour of the herbage eaten by the cattle, and with which the English taste promises soon to become familiar, and the same acquired taste would no doubt also relish in the course of time African meat.

3. Flax, cotton, and several fibrous products peculiar to South Africa, could no doubt be grown, and doubtless, in the course of time, will be grown in surplus abundance for the supply of the English market. The realization of this appears from the concurrent testimony of travellers to be only a work of time, so that it may be left in the hands of Progress for maturation. The growth of flax and cotton involves the production of oil-cakes, hence the connexion of this head with the first.

4. On timber and minerals little requires to be said. That the country abounds in both may be taken for granted; but with the march of improvement the probability is that the former will be required and consumed at home; while discovery has done comparatively nothing as yet to reveal the latter, which up to this date may be said to lie half-concealed in the bowels of the earth, only cropping out here and there in evidence of their existence.

The general conclusion from these desultory observations is, that results are more hopeful for Abyssinia and Eastern Africa than first thoughts may in many instances suggest, and that progress will, upon the whole, be in favour of English agriculture.

THEBES,

## ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

## MEETING AT LEICESTER.

## THE IMPLEMENT DEPARTMENT.

The display of machines in motion and of machines and implements at rest, to be met with, is indeed something very striking, and cannot fail to be, to the thinking mind, highly suggestive. The contrast which this for example, forces one to make, should not be lost sight of—the contrast between what agricultural engineering, taking this term in its widest acceptation, now is, and what but a decade or two it was. Scarcely a generation has passed away since agricultural machinery might have been generally, as it was literally in special districts, represented by the three primitive, or, as we should rather say, the three primary implements of culture—the plough, the harrow, and the roller; and when such limited motive powers as the limited work in which power was required by the farmer were represented by the oldest of all, manual labour; or, if a further extension were demanded, by the wind-mill and the water-wheel, both in their most simple stages of mechanical development. But the generation which has succeeded can now witness, at such a show, a remarkable exemplification of what the engineer and the mechanic have done—the one in inventing, the other in carrying out practically—to aid agriculture in all its departments, at once and equally useful in the field and in the fold—a condition of matter so extensively complete that any one thirty years ago could scarcely have believed it to be possible of realisation.

Another point which must strike even the most careless observer, in walking through the alleys and surveying the contents of the stands on either side of such an exhibition as that held this year, is the enormous influence which such a display of objects used in the practice of agriculture must have upon the vast body of visitors—an influence of the most beneficial kind; all the more, that in consequence of the custom which the Society has of visiting different districts in different years, it ultimately embraces within its limits the whole of England. It is not possible for even the most obtuse mind to come here and to go away without some useful impression having been made upon it; or the most prejudiced man taking home with him something which will overcome in some measure the erroneous notions as regards his daily practice, or touch stolid indifference and careless ignorance.

We find the crush and crowd most dense round the machines at work; here we find the eager faces and the still more eager inquiries of the interested. This was wonderfully exemplified at Leicester.

Let us take up first the novelties of the machinery-in-motion department; and here is the "rotary steam-engine," made by Mr. Robert Cowen, of Nottingham, the invention of Mr. Hall, and which attracted great attention from the simplicity of its general arrangement, and the ease and smoothness with which it worked even when run at very high velocities. In view of the disadvantages, or presumed disadvantages, attendant upon the ordinary reciprocating steam engine, with its somewhat complicated mechanical arrangements, the attention of a class of inventors, has through a long course of years been directed to the discovery of a form of steam engine in which these disadvantages and this complicated mechanical assemblage could be overcome. In the reciprocating engine, as is well known to

our readers, the motion of the piston made in one direction has to be stopped at the end of its stroke, and then moved in the opposite direction, at the end of the stroke of which it has again to be stopped, and again moved in a contrary direction. It is obvious, from these alternate movements and stoppages, which, although not observable in engines which run quickly, still exist, a loss of power, more or less in amount, results; for, to use a familiar mode of illustration, you set a train in motion, and as soon as you get it at full speed you stop it, not because you wish to stop it—on the contrary, you wish it to go on—but you have to stop it in order to get the next move in the train of its operations. Then, again, the great majority of operations are performed by the aid of circular motion, so that the alternate rectilinear motion of the piston of an ordinary steam engine has to be changed into a continuous circular one, and this again has to be re-changed into an alternate rectilinear movement to work the valves of the engine; so that, to meet all these exigencies of the mode of its operation, an ordinary steam engine, even in its simplest form, is so complicated, that we need scarcely wonder at the desire there is to introduce a steam motive in which the power is obtained directly by continuous circular motion, without the intervention of the mechanism we have above alluded to. But it is not to be supposed, whatever sanguine inventors may say, that a rotary engine, although theoretically, is practically better than a reciprocating one; on the contrary, the difficulties attendant upon the realization of a good rotary engine—as, for example, the keeping of the rubbing surfaces tight—are such that up to the present time no form of this class of engine has been able to compete with the reciprocating engine, which is so efficient and so economical in work and in the few demands it makes to keep it in repair, that it holds its own; and we must say that we believe that for a long time to come it will hold its own in the face of all competition. One may really buy gold too dear, and although one may have a rotary engine which is possessed of few working parts as compared with an ordinary reciprocating engine, it may in practice be found to be of such a delicate organization, so to say, that the cost of keeping it in repair is a formidable item; or it may be found that out of it you do not get anything like the full economy of the steam, which you would obtain in the ordinary engine. At the same time while saying all this, which under the circumstances of our duty it is right to say to our readers on the general subject, we are equally bound to say that the form of rotary engine, which we already alluded to as working at Leicester, struck us as being possessed of so many features of practical value, that we think it very possible it will have a "future of request" which has not been granted to many engines of its class. We shall now endeavour to describe the engine as clearly as can be done by words without drawings. The cylinder is placed horizontally at one end of the frame, and is provided with a steam-chest, which runs along the whole length of the cylinder at its upper part. In connection with the steam-chest, in the centre of its width or breadth, there is a chamber provided with an equilibrium cut-off valve, which regulates the admission of the steam to the steam-chest. The steam of the valve is passed through the stuffing-box of the chamber, and the lower end works in contact with a

circular cam, which slides upon the central axis or shaft of the engine, and is controlled by a horizontal governor. The motive power is obtained by the revolution of an eccentric piston, which is in fact a cylindrical roller round the interior of the main cylinder, the centre of the piston being the central axis of the engine. To maintain the roller or piston steam-tight, the part which is in contact with the interior surface of the cylinder is provided with spring-packing, and, further, with metallic springs at each end, these working against the turned surfaces of the end covers of the cylinder. The steam is made to move this roller or piston by a simple form of valve, which is raised into the space of the steam-chest above the cylinder, through the slot or spring made in the upper part of it and along its whole length, by the revolution of the piston or the roller itself, in rising from its lowest to its highest position in the cylinder; the return motion of the valve being effected by the pressure of the steam in the steam-chest upon its upper portion, which keeps it in contact with the piston as it moves round again to its lowest position. The valve is hollow, and the steam passes from it always on one side of the piston, or rather one-half of the roller's circumference; the exhaust steam passing out by a pipe on the other side of the cylinder. Diagrams shown us by the inventor indicate a very good distribution of the steam.

We now come to another novelty amongst the prime movers in the yard—namely, a hot-air engine. The obvious economy of the method of utilizing heat, by the direct application of it to air or other permanent gases, so as to get their expansive powers directly developed, has for long been recognised, and numerous inventors have endeavoured to realise it in practice. The difficulties however have been so great in the way of its realisation, that attempt after attempt has been made with the unfortunate result, as a rule, of failure more or less complete. Generally, the plans attempted had for aim the expanding of the air in a separate vessel or receptacle, the result being that, in consequence of the high temperature necessary, this vessel very rapidly decayed. Other difficulties moreover were met with, the chief of which was that of keeping the stuffing boxes and the piston tight, under the high temperature of the air used, and which also prevented the use of ordinary lubricating materials. Messrs. Edwards and Co., Oxford-street, London, who exhibited the form of hot-air engine above alluded to, claim to have overcome, by these arrangements, all these and other defects of hot-air engines hitherto introduced into practice; and to have succeeded in bringing out a highly-efficient form, and one which is very economical. A close inspection of this engine inclines us to believe that the inventors are, to a large extent, entitled to claim these advantages, and we now proceed briefly to explain by what means they secure them.

The first, and perhaps the most essential feature to be noticed, is the heat generation, which is combined directly with the air expander, or, in other words, the air is expanded by the direct action of the fuel in the generation; the air so expanded being forced into the generator or furnace by means of an air pump, which is worked by the engine itself. The cylinder is placed immediately above the furnace, and the air forced into it by the air pump gets heated by direct contact with the fuel, and rises up into the cylinder, pressing upon the piston and raising it. The piston is a hollow plunger, after the trunk engine principle, and the packing is placed around its upper circumference; which, being at some distance from the under part with which the hot air comes in contact, is comparatively of low temperature, and therefore enables the piston to be well lubricated. The furnace in which the fuel is consumed is lined with fire-clay, so that it is not subjected to the heat of the consuming fuel, and

therefore lasts a long time. When the engine is working, both the ash-pit door and that of the furnace are closed hermetically, the only air passing in being through the agency of the air pump. The engine can be started in a few minutes after the fuel is lighted, a few turns of the fly-wheel working the air-pump. The air-pump is placed at the back of the furnace and cylinder, and is worked by two rods passing down from and jointed to the cross-bar which connects the ends of two short working beams which are connected at their other extremities with the piston rod. The speed of the engine is regulated by dampers, which pass the air either *through* the burning mass of fuel in the furnace, or over the same, according to the amount required. These dampers are regulated through the agency of the governors, and are worked by cams from a small eccentric in the main driving shaft. One of the sources of economical working of this engine is the utilization of the gases which arise from the combustion of the fuel; these in all other forms introduced having been passed off into the chimney, the ordinary air alone when heated forming the source of motive power; but, in the engine now under notice, the permanent gases of the fuel are utilized as well as the ordinary air.

Not far from or rather close to the place where Edwards and Co.'s hot-air engine was working, a rival form of novel motive power was to be seen in operation—namely, the "Hugon Gas Engine." Although this is not so universally applicable to farming districts, inasmuch as on many farms gas is not obtainable, while the hot-air engine can be worked wherever fuel can be had; still, it will interest our readers to have before them a brief description of its peculiarities. In its general features this engine resembles closely that of a horizontal steam-engine, with, however, a greater size or bulk in proportion to its power, this arising from the space required in the cylinder to admit of the necessary space for the expansion arising from the explosion of the gas. The gas which works the engine is not passed into the cylinder in its pure or ordinary condition, as this would not give ignition the necessary explosive power; but is mixed with common air, in the proportion of nine parts of air to one of gas. In the first forms of this engine the gas was exploded in the cylinder by means of electricity; but this necessitated the use of so large a quantity of grease, that it seriously impeded the working of the piston, while in addition the complicated and delicate arrangements of the battery were such as to militate greatly against the introduction of the engine, as careful and accurate supervision is by no means generally met with in places where power is required. In the engine now used slide valves are used, which carry gas burners supplied at pressure with gas, and the gas is lighted and explosion caused by its coming in contact at the right time with a small jet of gas. This lighting jet, as it may be called, is blown out at each stroke of the engine, in consequence of the explosion; but it is immediately relighted by means of an ordinary jet, which is kept constantly burning outside. When the gases explode in the cylinder, a very fine spray of water is introduced into it, which, coming in contact with the heated surface of the cylinder (about 1200 deg. Fahrenheit being the temperature), is formed into steam, which at once reduces the heat, lubricates the working parts, and equalizes the pressure throughout the stroke. The valves work against orifices in the cylinder, so as to open or close them, bringing the burners to and from the orifices at certain intervals, thus admitting, intercepting, and regulating the supply of gas to the cylinders, and also permitting and shutting off the escape of gas therefrom after the explosion. When the gas is admitted to the cylinder through the induction part, the valve at the required moment brings the flame of the burner or lighting jet in contact with it; ignition and explosion take



place instantly, which presses upon and moves the piston along the cylinder, the induction part opening at the proper time allowing the remaining gases and steam to escape into the atmosphere. Nothing can exceed the great ease and simplicity with which this engine is set to and taken out of work, this being done as easily as the lighting of gas jets in a room. The engine works very smoothly with little or no noise; it is absolutely safe, and almost the only objection which can be made to it—for the peculiar positions which we think it is best adapted—is the price. A reduction of this would, we believe, be greatly to the interest of the makers.

Messrs. Ruston and Procter have one of their portable steam engines, with Chapman's eccentric, for securing a variable expansion. This is a very simple mode of giving an advantage of expansive working, so as to enable the engine to give off exactly the power required—a matter of the greatest importance; because, at times, the engine which is calculated to give off when required its full power, as in thrashing and the like, may at other times be required to give out only a portion of it, as in the case of straw and root cutting, &c. The forms of apparatus generally introduced by which all the advantages of expansive working have been sought to be obtained, have, as a rule, been complicated to a greater or lesser extent. In this form—the invention of Mr. Chapman—the parts are reduced to the minimum of simplicity, being in fact the same as in other engine valve gear, namely, one slide valve and one eccentric. How this simplicity is obtained may be seen from the following brief description, which will of necessity not be quite so clear as it would be if we had diagrams ready to illustrate it. To the crank shaft of the engine a circular plate or disc is keyed, and is concentric with the shaft—that is, has no eccentric motion, but revolves uniformly with it, as does the fly-wheel. This disc is provided with a slot or aperture passing from side to side. Close to the side of the disc, and hung or suspended, so to say, on the shaft, a crank axle is the eccentric for working the valve. The eccentric is connected with the disc by means of a bolt and nut; and this bolt can be secured at any point desired in the slot of the disc, and, according to its position in this, so will be the degree of eccentricity in the path of the eccentric, and by consequence the rate of travel of the valve rod and valve, and also the degree of expansion. The degree of expansion at any point of the slot is marked by graduated points on the side of the slot. This arrangement, like the curved, slotted link of an ordinary locomotive, is, like it, capable of being worked as a reversing gear, but the engine must be stopped before the reversing can be effected; whereas in the locomotive this is done without stopping the engine. This objection also holds in the case of altering the degree of expansion; but this is no great objection after all; the stoppage and adjustment take up very little time; while, once adjusted, the probability is that the degree of expansion obtained will be that required for the work of hours. Moreover, this apparatus is not costly—indeed, in the case of purchasers of the engines of Ruston, Procter, and Co., it is *costless*, as they apply it to all the engines they send out free of charge. In other instances we believe the charge is £15 only.

In the way of boiler novelties two examples were in the Show-yard; one of the Messrs. Howard's, of Bedford, the other that of Mr. R. Cowen, of Nottingham, on Fild's patent tube principle. The boiler of the Messrs. Howard we have already described in these columns; we therefore pass on to the boiler exhibited by Mr. Cowen, which, although in one sense is no novelty—having been worked by Mr. Field some three years ago—but in another is, for we believe this is the first time the prin-

ciple has been exemplified at any of the Royal Society meetings. The arrangements of the boilers depend upon the kind of boiler to which the principle is applied, but which is in all cases similar, and may be briefly described. The water space is provided with a number of tubes, these being closed at the lower ends and open at their upper ends to the water space, these upper extremities being some inches below the nominal level of the water in the boiler. These tubes are therefore filled entirely with water, and if left thus there would be little or no circulation of the water within their interiors; but to insure this circulation, each tube is provided with an internal tube, open at both ends, the lower end of which is carried down to within a short distance of the bottom of the outer tubes; while the upper end is carried some distance above the level of the upper end of the outer tube. The inner tube is suspended by means of fenders, and its upper end is finished off with an expanding funnel-shaped top, the wide end being uppermost. The arrangements here described is found in practice to bring about a remarkably quick circulation, and to reduce materially the tendency of the water to form deposits in the boiler or pipes.

#### AN ALPHABETICAL LIST OF THE EXHIBITORS OF AGRICULTURAL IMPLEMENTS, AT THE LEICESTER MEETING, in 1868.

AGRICULTURAL AND HORTICULTURAL ASSOCIATION, 29, Parliament-street, Westminster.—Variety of wire fence and hurdles, poultry court, palisade, wire netting, gates, tree-guards, cages, coops, archways, troughs, rollers, manure and linseed cakes, with samples of agricultural seed and artificial manure.

ALLCOCK, THOMAS, Ratcliff-on-Trent.—Cultivators, grubbers, and scarifiers; chaffcutters, horse hoes, horse rakes, one-horse manual-delivery reaper; back-delivery reaper, and improved carriage lifter.

ALLCHIN AND SON, Northampton.—Nine, eight, seven, and three horse portable steam engines; portable corn grinding mill, and set of six iron screwjacks.

ALWAY, WM., 37, Chapel-street, Pentonville, London.—Milk cooler, tin barrel churns, field churns, pails, and milk kettles.

AMIES, BARFORD, AND CO., Peterborough.—Presswheel rollers and clod crushers, water-ballast rollers, straw elevators, horse-gear works, corn and oilcake mills, steam cooking apparatus, portable boiler, stiles, hurdles, and garden seats.

APPLEBY BROTHERS, Emmerson-street, Southwark.—Steam lift and force pump; steam pump, donkey, or fire engines; lift pumps with rotary motion; other lift and force pumps, rock boring and tunnelling machines, and motor for working the diamond rock borer.

ARMSTRONG, JOHN, Penrith.—Swing and ridging ploughs, horse hoes, grubbers, drag and other harrows, and set of chain harrows with improved dividers.

ASHBY AND JEFFERY, Stamford.—Solid-axle haymakers, balance-lever steel-tooth horse rakes, patent wheel hand-rake, chaff cutters, oilcake breakers, turnip cutters, rotating and chain harrows, Tinkler's churn, one-horse gear work; three, four, six, and eight horse portable steam engines and combined thrashing machines; portable stone grinding mills, saw bench, crank shields, clod crushers, and field roll.

AVELING AND PORTER, Rochester.—Set of steam ploughing and cultivating apparatus, ten-horse winding engine; agricultural locomotive of ten-horse nominal, but will work up to forty horse; locomotive crane engine for roads; set of patent travelling rope parters.

ATSFORD, T. B., Walham-green, Fulham.—Village phaetons, Edinburgh dogcart, and canoe wagonette.

BAKER, JOHN, Wisbeach.—Corn-blowing, screening, and dressing machines, and patent rakes on Samuelson's reaper.

BAKER, THOMAS, Newbury.—Liquid manure and water carts, steerage horse-hoes, cultivator, two-horse gear, and liquid manure distributor.

BALL, GEORGE, Kettering.—Wrought-iron cultivators, iron ploughs, waggons, and one and two-horse carts.

BALL AND SON, Rothwell.—Collection of iron ploughs, scarifiers, rollers, harrows, carts, waggons, corn-drills, horse-rakes, chaff-cutters, horse-hoes, and two-horse gear.

BAMLETT, A. C., Thirsk.—Two-horse grass-mower, compound (combined P) reaper and mower, one-horse manual-delivery reaper, and stand for holding reaper-knives.

BARNARD, BISHOP, AND BARNARDS, Norwich.—Noiseless lawn-mowers without gear wheels, chains, or levers; ditto with gear wheels and improved side-tipping delivery; single and double cylinder garden-rollers, worm-cast distributor and loose-leaf gatherer, swing water-barrow, garden and park chains and folding-stools, tables, &c.; wire netting, cattle and poultry troughs and fountains, field-gates, and stable requisites and furniture.

BARROW AND SON, Borrowash, Derby.—Transplanting machine, for the removal of large trees.

BARROWS AND STEWART, Banbury.—Three and five-tined steam cultivators; four-wheeled windlass, iron anchor, three and two-wheel rope-porter, stationary ditto, snatch-block; double-cylinder portable steam-cultivating engine, eight-horse power; portable steam-thrashing engine, five-horse portable steam-engine, single-blast thrashing machine, thrashing and finishing machine with dressing apparatus, double-blower thrashing machine, corn-mill, conical burr-stone mill, lifting-jacks, endless driving bands, and waterproof covers.

BARTON, WILLIAM, Boston.—Cooking ranges and stoves, roasting-screens, hot closets, steam-kettles, and roasting-jack; also six improved tea-kettles.

BAYLISS, JONES, AND BAYLISS, Wolverhampton.—Field, entrance, and hand gates; cattle and other hurdles and fences, tree-guards, garden-rollers, heating and sack barrows, chain-harrows, vermin-proof rick-stands, carriage-jack, sheep-troughs, cisterns, pails, and skeps.

BEACH, JOSEPH, Dudley.—Farinaceous food for cattle, sheep, and pigs; and condiment for horses.

BRADSMOKE, THOMAS, Loughborough.—General-purpose wood and iron ploughs, cultivators, and chaffcutter.

BEARDS, THOMAS, Stowe Park, Bucks.—A two-furrow plough hung on an iron frame, mounted on four wheels.

BELCHER, GEE, AND CO., Gloucester.—Slate tanks and coolers for milk and whey; slate manger, cattle trough, and shelving; plain and enamelled face mantelpieces; and enamelled table top, inlaid with imitation marbles and flowers, with iron (bronze) stand, for the dining room.

BENTALL, E. H., Maldon.—Subsoil plough, broadshare and cultivator, angle iron harrows, chaffcutters, root pulpers, turnip cutters, root slicers, oilcake mills, corn and seed crushers, bean and oat kibblers, and horsegears.

BEVERLY IRON AND WAGON COMPANY, Beverly.—Clod crushers, plain field rollers, grass mowers and reapers, carts, waggons, liquid manure and water carts, wheels and axles, railways and trucks for farm purposes, root washers, pig troughs, bonedust and compound action mills.

BIGG, THOMAS, Great Dover-street, Borough.—Sheep-dipping apparatus on wheels, and with iron bar drainer.

BILLSON AND SONS, Leicester.—Collection of rick covers, wagon and cart covers; ropes for hoists, cranes, and pulley blocks; sacks made from jute and from hemp; wagon and cart ropes, fence netting, plough reins, halters, thatching cords, and clothes lines.

BLOW AND SON, 23, Commercial-street, Whitechapel, London.—Endless leather strap, indiarubber bands and hose, leather hose pipes, double strap for heavy machinery, strap butts and screws, donkey pumps, oat bruisers, cottage range, and corn mill.

BLOXSON, JOHN MARTIN, Gilmorton, Leicestershire.—Six horse portable and 2½ horse stationary steam engines, double-blast combined thrasher, circular-saw bench, chaffcutter, six-row steerable corn drill, and one-horse reaper.

BOBY, ROBERT, Bury St. Edmunds.—Iron and wood-beam ploughs, plough-wheels, ribbed rollers, barley-rolls, haymakers, horse rakes, corn screens, barley haveler, corn dressers, chaff sifter, horse power, and malt plough.

BOYNALL, HEMPESTED, AND CO., Grantham.—Eight-horse portable engine, treble blower, finishing thrashing-machines, straw elevators, chain corn-drills, horse hoe and turnip thinner, weighing machine, cylindrical bearings, screw jacks, chilled plough-shares, hay forks, and portable grinding mill on travelling wheels.

BOULTON, W. S., Norwich.—Swing water barrow and liquid manure carts, garden engines, portable pump and suction, garden chairs, and wire netting.

BOYALL, R. J., Grantham.—Stanhope phaeton wagonette with reversible seat, village phaeton, Alexandra car, Dagmar car, and light medium-sized brougham.

BRADFORD AND CO., 63, Fleet-street, London.—Vowel washing, wringing, and mangling machines, drying closets, linen press, mid-feather and counter-current churns, portable boilers, riddling apparatus, and "Eclipse" cinder sifter.

BRAGGINS, JAMES, Banbury.—Park, entrance, field, and other gates, iron work and posts complete.

BRAINSBY, THOMAS, Peterborough.—Very light Oxford dog-cart, village phaeton for six persons, Taunton dog-cart on eighteen-spoke hickory wheels shod with steel, and Maxwell car to carry two or four persons.

BRANFORD AND SON, March.—Draining, splitting, and ridging ploughs; diamond, Tweedside, and revolving horse-hoes; barley haveler, "international" washing, wringing, and mangling machines.

BROUGHTON, J. AND J., Leicester.—Lever washing, wringing, and mangling machines combined.

BROWN, BENJAMIN, 39, Charlotte-street, Blackfriars Road.—Samples of improved steel spring lever oil-feeders, needle lubricators, belt fasteners, vent-peg on hydraulic principles, glass lantern for stables, and patent egg-testers.

BROWN LAWRENCE, Leicester.—Lancewood shafts, brougham fronts, wheel rims, phaeton wings, carriage fulcrums, bottom sides for basket phaeton, and ash cart shafts.

BROWN AND LOCK, Shrewsbury.—Eight and nine-horse "Economic" portable steam engines, and two-horse gear works.

BROWN AND MAY, Devizes.—Eight, six, and 2½-horse portable steam engines; combined thrashing, winnowing and riddling machine.

BURGESS AND KEY, 96, Newgate-street, London.—Grass-mowers, combined reapers and mowers, sheaf and swathe delivery reapers, sausage machine, churn, corn-bin, and garden-seat.

BURNEY AND CO., Mill Wall, London.—Wrought-iron cisterns, water-cart bodies, tanks, drinking pans, cattle-troughs, and corn-bins.

CAMBRIDGE AND CO., Bristol.—Rollers, chain harrows, excelsior tine harrows, land pressers, one-horse gears with intermediate motion, two-horse gear and thrashing machine horse rake, and turnip cutters.

CANADIAN WASHING MACHINE AND AGRICULTURAL IMPLEMENT COMPANY, Worcester.—Sets of "Paragon" harrows, washing, wringing, and mangling machines, clotheshorses, and a double-action steam power washing machine.

CARR, THOMAS, Richmond Road, Montpelier, Bristol.—Pulverizing disintegrator, for artificial manure works.

CARSON AND SONS, Belle Sauvage Yard, Ludgate Hill, London.—Samples of the "original" anti-corrosive paint, pure linseed oil, drying oil, turpentine, varnishes, paint brushes, pots, &c.

CARSON AND TOONE, Warminster.—Chaff and turnip cutters, horsehoes, horsegear for driving chaff cutters, &c., oilcake crushers, garden roller, and assortment of cheese presses.

CARTER AND CO., 237, High Holborn, London.—Samples and specimens of wheat, barley, and oats; samples of mixed grasses, and of agricultural and garden seeds, and collection of ornamental terra cotta pots, vases, &c.

CHAPMAN, WM., Apethorpe, Northamptonshire.—Two-horse wagon, two and one-horse carts, and light spring lorry or dray.

CHEAVIN, GEO, Boston.—Stone and iron self-cleaning rapid water filters "for removing lime and other impurities out of any kind of water."

CHURCHILL, CHARLES, 16, Lawrence Pountney Lane, London.—Anti-freezing American pumps; champion, pitcher-spout, and deep well pumps; hydraulic ram, hand, rotary, and double-discharge force pumps with air chamber, hay and manure forks, grindstone, American corn-sheller, parallel vice, Coe's screw wrench, broad-cast seed sower, pivot boring machine, axes, &c.

CLARK, JAMES, Lincoln.—Flat rollers, dressers, corn drills, turnip drill, chain harrows, shaking screen, and assortment of malleable castings.

CLARKE AND SON, Brackley.—Complete set of draining tools, adjustable garden and other scythes with tubular iron sheaths.

CLAY, CHARLES, Wakefield.—Cultivators, chain harrows, horse-hoes, and grubbers.

CLAYTON, SHUTTLEWORTH, AND CO., Lincoln.—Ten-horse power, double-cylinder portable steam-engine, eight and six-horse single-cylinder portable engines, and ten-horse horizontal fixed engine; double-blast finishing thrashing-machines, portable straw-elevator, sack-lifting barrows, set of adjusting blocks for choking the wheels of an engine or thrashing-machine, revolving liquid manure and drop drill for turnips and other seeds, and self-acting circular-saw bench.

COLEMAN AND LOVE, Northampton.—Lever cultivators, horse hoes, cultivating harrows, bin and trough with hay-rack, horse hoes, and oil-cake breaker.

COLEMAN AND MORTON, Chelmsford.—Yarrow and Hilditch's steam-cultivating apparatus, three-furrow steam-plough, subsoil plough, variety of cultivators, clod-crusher, Hanson's potato-digger, manure and water carts, corn screens, oil-cake cutters, horse gears, rope porters, and samples of shares.

COOCH, JOHN, Harlestone.—Corn dressers, and small seed apparatus.

COOKE AND CO., Lincoln.—Wood and iron swing and wheel ploughs, drag, harrows, waggon, one and two horse carts.

CORBETT, THOMAS, Shrewsbury.—“Eclipse” combined blowing, winnowing, and screening machines, and “Excelsior” self-cleaning corn screen.

CORBETT AND SON, Wellington, Salop.—Cultivator, four horse portable steam engine, root pulpers, mills for feeding purposes and for breaking and grinding oilcake, hand mill for grain, chaff cutter for power, turnip slicer and scuffer.

CORCORAN AND CO., 48, Mark Lane, London.—Samples of French runner and bed millstones, Golay's new patent diamond millstone dressing machines, wheat-cleaning and flour dressing machines, aspirator with riddles, weighing machines, mahogany stone staff, jack stick, sack trucks, mill bills and handles, flour brushes, mill brooms, flour scoops, smut wire, malt-kiln floor, shovels, measures, chronometer, sample-corn receiver, woven wire, broadcast seed-sower; gut, leather, gutta percha, and indiarubber driving bands; oilcans, pulley blocks, mineral sieve, and deckle strap.

CORT AND PAUL, Leicester.—Cooking apparatus and boiler ranges, Rumford stove, oven and sham, variety of other stoves, flower guards, stable furniture, pig and poultry troughs, hurdles, fences, gates, and kitchen requisites.

COTTAM AND CO., 2, Winsley-street, London, W.—Large assortment of stable furniture, cattle troughs, corn bins, and dog troughs.

COULTAS, JOHN, Grantham.—Clod crushers, general purpose and manure drills, artificial manure distributors, corn and seed drills, carriage steerage, horse hoe, horse rake, and two-horse self-raking reaper.

COWEN, G. R., Nottingham.—Eight-horse power horizontal engine, eight-horse rotary engine, two-horse ditto, and ten-horse boiler with patent tubes.

COX, WM. PENN, Leicester.—Newspapers.

CRANSTON, JAMES, Birmingham.—Patent conservatory, highly commended by the Royal Horticultural Society.

CROSSKILL AND SONS, Beverley.—Clod crushers, field rollers, carts, waggons, liquid manure carts, portable pump, cart wheels and axles, Archimedian root washers, portable farm railway, trucks, and turntable, three-horse and self-acting sheaf-delivery reapers, improved single-roller bone mill.

DAVIS, ALFRED A., Royal Polytechnic, London.—Lactometers or milk tests; mechanical and scientific gyroscopes, and model steam traction engines.

DAY AND SONS, Shavington, near Crewe.—Driffield oils, drenches and draughts for cattle, horse powders, and medicine hests.

DAY, SON, AND HEWITT, 22, Dorset-street, London.—Stock-breeder's complete medicine chest, with “Key to Farriery,” various drenches, condition balls, gaseodyne, and sulphuretted extract; lecture on sheep, and essay on calves.

DEATH AND ELLWOOD, Leicester.—Eight-horse and 1½-horse fixed steam engines, steam pumps, two and four-horse works, circular-saw bench, bolt-head and nut-shaping machine, fourteen-inch centre screw-cutting lathe, 10½ and 6½ ditto, and drilling machine.

DELL, WM. R., 72, Mark Lane, London.—Four-horse power vertical fixed engine, wheat cleaner and separator for flour mills; “Paris Exhibition,” “Eclipse,” “Unique,” and “Paragon” smut machines; Golay's diamond millstone dressing machine; French burr runners and bedstones, eye for stone for grinding cement, portable crane for lifting millstones, swivel carriage, iron worm creeper, lifting jacks, straps, pulley blocks, weighing machines, and sack lifter.

DENTON, HENRY, Wolverhampton.—Chain harrows, horse gear, rib roller, slide valve for steam engine, and stand for reaping machine receiver.

DIXON, ADAM, 11, Adam-street, Adelphi, London.—Thirty steam and vacuum gauges, eight double diaphragm steam gauges, seven single ditto, four glass or water gauges.

DODGE, GEORGE P., 79, Upper Thames-street, London.—Assortment of vulcanized indiarubber machine bands, suction hose, tubing, waterproof cover, gutta-percha driving band, indiarubber bucket and deckle straps, ditching and maling boots, tarpaulin, and asphalt roofing felt.

DRIFFIELD AND EAST RIDING PURE LINSEED CAKE COMPANY, Great Driffield.—Pure linseedcake manufactured by the newly patented process.

DUFFIELD, HENRY, 60, William-street, Regents Park, London.—Variety of butter prints for farm and private houses, boxwood butter beaters and slicers, butter curlers, boards, trainers, skimmers, ladders, and specimens of fancy woodware for ladies' use.

EASTWOOD, JOHN, Blackburn.—Two to thirty-gallon compound action churn, the latter with pulleys.

EATON, JOHN, Thrapston.—Rack bar, lever, and screw jacks; sack elevator, and circular sheep cribs.

ELLIS AND EVERARD, Leicester.—Quantity of Markfield granite blocks as quarried, granite paving setts, curbing, and small-sized stones; quantity of blocks of stone from Bardon Hill; specimens of coal and limestone; linseedcake, cottonseed cake, manures, and articles used in adulterating them.

ELLIS AND SONS, Leicester.—Samples of blue lime in stone, burnt in shell, and ground; gate posts in Groby slate, salt troughs for cattle, milk slates, window sills, roofing slates, kerbing, and sink stone.

EVANS, JAMES, Liverpool.—“Viceroy” handsome osh, “Alexandra” drag, “Stanhope” phaeton, and “Dennet” gig.

EVANS AND STAFFORD, Leicester.—Specimens of American cheese made in the state of New York, weighing from 300 to 1,135 lbs. each cheese.

FISKEN, WM., Stamfordham.—Set of two-anchor windlasses for steam culture, and steam boiler “of immense strength and heating surface.”

FOSTER AND CO., Lincoln.—Eight and ten horse portable steam engines, combined portable finishing thrashing machine, fixed corn mill, 24 horse fixed steam engine, portable circular-saw and boring bench.

FOWLER AND CO., 71, Cornhill, London.—Twenty-horse power double set of steam ploughing machinery, eight and ten-horse hauling apparatus for steam culture, balance ploughs, cultivators for light or heavy sand [land F], sets of harrows, subsoil ploughs, Norwegian harrows, seed drill with harrows, revolving pulverizers, balance five-tine bevel beam cultivators; steam drain digger and mole plough; van to carry the spare parts of the steam plough, fitted with six beds for the men; traction waggon, water carts, horse ploughs, and traction engine.

FOX AND SON, Doncaster.—Assortment of jute, flax, and hemp sacks and bags, wool sheets, canvas, beddings, ticks, paddings, and sackings.

FRER AND CO., Rothley, Leicestershire.—Grain and seed dibbling machines, fitted with dibbles at the periphery of four, five, and six hollow iron serrated wheels.

GARDNER, WM., Gloucester.—French runner millstones and bedstones, cast-iron millstone prover, flour bolter, mill staff, pick, millbill handles, machine wire and brushes.

GARRETT AND SONS, Saxmundham.—Six and ten-horse portable engines, agricultural self-moving steam engine of eight-horse power, combined thrashing and dressing machines, French burr stone grinding mill; corn, seed, and manure drills; horse hoes, artificial manure distributors, fore-carriage drill steerages, straw elevators, corn dressing machine, hay and corn rick ventilators, patent grain ventilators.

GATWOOD AGRICULTURAL IMPLEMENT AND MACHINE CO., King's Lynn.—Eight-horse power patent combined locomotive thrashing and dressing machine.

GIBBONS, PHILIP AND H. P., Wantage. — Seven-horse power portable steam engine, and portable combined finishing and thrashing machine.

GIBBS (THOMAS) AND CO., corner of Half-moon-street, Piccadilly. — Collection of dried specimens of natural grasses used in forming permanent meadows; specimens of English and foreign wheats, barleys, and oats in the ear; samples of permanent and other grass seeds, and clover, mangold wurtzel, turnip, and carrot seed; agricultural roots, and growing specimens of agricultural seeds.

GILBERT, JOSEPH, Evesham. — Combined thrashing machine, fitted with Clayton and Shuttleworth's patent beaters, and Coulson's spring hangers.

GOODALL, HENRY, Derby. — Domestic kneading machine, dash churn, and butter powder "for extracting all impurities from the cream."

GOSS AND SON, Plymouth. — Zinc stencil plate letters for marking millers' sacks, branding figures for marking sheep's wool with paint, letters for branding brewers' casks and bullocks' horns and hoofs, moulders' letters for ironfounders and engineers, silver electrofaced types and blocks, and specimens of persons' names cut out of solid steel.

GOUCHER, JOHN, Workop. — Collection of drum beater plates, model of a thrashing machine, and working model of a swimming machine consisting of wings secured to a central back rib, to be worked by the hands and feet.

GOWER AND SON, Market Drayton. — Corn and seed drills, two-furrow drill presser, manure drills for ridge and flat, ridge drills for turnips and mangold, twenty-three coulter drill for clover and rye grass, Plymouth prize medal broadcast machine, patching drills, and horsehoe and scuffler.

GRANT, JOHN, Love-lane, Southwark. — Portable railway without cross sleepers, ballast wagon, and portable turn-table.

GRANTHAM, CHARLES, Peterborough. — Dressing and blowing machine with elevators, and combined dressing and blowing machine.

GREEN AND SONS, 54, Blackfriars-road, London. — Four-horse power steam-engine, lawn-mowing machines, garden rollers, mincing sausage machine, and Rotterdam chairs.

GREEN, JOHN, Newtown, Worcester. — Digging, pulverising, or cultivating plough; rollers, clod crushers, harrows, horse-rake, and scarifier.

GRIFFIN, MORRIS, AND GRIFFIN, Wolverhampton. — Sample bags of manure; corn, flour, and malt sacks; rick sheet, cart and wagon covers, and sheet for portable engines and thrashing machines.

GROVER AND BAKER, 150, Regent-street, London. — Assortment of double-lock-stitch sewing machines.

HANCOCK, F., Dudley. — Machines for making butter and pulping potatoes; also for pressing juices from fruit.

HANCOCK, JAS. L., Sutton Coldfield. — Haymakers, butter purifiers, tincture presses, spring and wool mattresses, and newly-improved carriage wheel.

HANCOCK AND FODEN, Sandbach. — Combined reaper and mower with endless chain of double cutters and double-fingered bar, and six-horse horizontal fixed steam engine.

HANDLEY, R. G., Birmingham. — French runner millstones and bedstones, mahogany millstone staff, box mill chisels and handles, needle lubricators, Derby Peak grey runner millstone, metal prover, millstone-face gauge, spiral beater for dressing mill, machine wire and brushes.

HARDON, EDWIN, Strangeways, Manchester. — Royal patent cake and "original" condimental food.

HARE AND CO., 31, Essex-street, Strand. — Illustrations of implements, engines, and machines; list of British and foreign prize medals.

HARRATT, CHARLES, Nottingham. — Patent steam spade, "urged into rotary motion by a ten-inch steam cylinder, without crank or flywheel."

HARRIS, JOHN, 53, Long-lane, Bermondsey. — Moveable letters and brands "to prevent oxydization of marking inks," sheep and sack marks, stencil plates, steel letters, and permanent marking inks.

HARRISON, THOMAS, Lincoln. — General purpose, liquid manure, ridge, cup corn, and barrel corn drills, and small seed distributor.

HARRISON AND BROTHER, Leicester Forest East. — Four-and-a-half inch wagon, and four-inch cart.

HARRISON AND SON, Leicester. — Collection of agricultural and other seeds, roots, plants, flowers, coloured plates, &c.

HART, DAVID, 244, Whitechapel-road, London. — Fixed and portable machines for weighing bullocks, sheep, pigs, wool, leather, hides, roots, goods in sacks, and for general purposes.

HARWOOD, WM., 36, King William-street, London Bridge. — Sheep scales, scythe sharpener, edge tool and table cutlery sharpener; step chair for gardens, library, halls, &c.; atmospheric churn, carpet sweeper, and small goods for various domestic purposes.

HAWKES, SPENCER, AND CO., Tiverton. — Eight, eleven, and thirteen-row patent chain corn drill.

HAYES, EDWARD, Stony Stratford. — Ten-horse portable steam engine, patent self-acting windlass, combined cultivator, iron anchors, snatch blocks, rollers, levers, crow bars, and steel rope.

HAYES AND SON, Stamford. — Waggons, carts, lorries, van, private omnibus, phaeton, and seaside sociable.

HAYS AND SON, Elton, Hunts. — New patented straw elevator, to work at any angle, and with patent vibrating boxes, to secure the waste corn that escapes the combined shaker.

HAYNES AND SONS, 220, Edgeware-road, London. — Hydronette for watering gardens, greenhouses, and conservatories.

HAYWARD, TYLER, AND CO., 84, Upper Whitecross-street, London. — Horizontal high pressure steam engines of  $\frac{1}{2}$ -horse power, rotary tank and other pumps, horse wheel for high speeds, lubricator, carbonator, garden engines, stock valve, hydrant, and stand pipe for fire mains.

HAYWOOD, J. AND G., Derby. — Sets of draining tools, chaffcutters, two-horse gears, cheese presses, curd mills, grass mowers, field rollers, haymakers, horse rakes, carts, ploughs, harrows, cultivators, scarifiers, corn dressers, drills, mills, root pulpers, turnip cutters, harrows, mangles, vases and pedestals, washing machines, and a variety of garden requisites and domestic utensils.

HEADLY AND SON, Cambridge. — Nine and seven-tine cultivators, water cart, drag rake, cattle troughs, mangers, reapers, gapping drills, garden pumps, corn bin, school desk and form combined, weather vane, garden chairs, and flower stands.

HENTON AND SON, 268, Westminster Bridge Road, London. — Elastic side and other saddles, and Melton saddle stands.

HILL AND SMITH, Brierley. — Skim plough, cultivator, rollers, harrows, horse hoes, chaff cutters, racks and troughs, barrows, varnish, forge, work-bench, garden seats, tree guards, rollers, rick stands, gates, hurdles, fences, netting, stable fittings, sheds, and dog kennel.

HILL, WM., 57, Aylestone-street, Leicester. — Disc washing, wringing, and mangling machines; single and double wood and wicker perambulators and farmer's benzoline lantern.

HIND, H., Nottingham. — Self-acting double-gear slide and screw-cutting treadle lathe, four-jaw chuck, vertical bench drilling machine, strong iron saw bench, double-purchase crab, punching bear, traversing lifting-jack, ratchet brace, stocks, dies, drop-through taps, and stops; jump-jointed brewing pan, belting, shafting, and pulleys.

HITCHCOCK, THOS., B., Bury St. Edmunds. — Leather machine-driving bands, convex thrashing machine driving pulley, adhesive composition for leather bands, and white leather thongs.

HITHERLEY, THOMAS, Thrusington. — An assortment of iron and wood ploughs.

HOBBS, PHILIP, Basinstoke. — Three and four-beamed harrows with whippetrees, corn, bean, and oilcake mills, sack cart and elevators, screw cribs, wheelbarrows, liquid manure pump, and corn screen.

HOLMES AND SONS, Norwich. — Rotary harrow, land roller, eight and seven-horse portable steam engines, thrashing machines, straw elevators, saw tables, clover and trefoil seed sheller, corn and seed drills, fore-carriage steerage, seed and manure drills, roller ridge drill, handbarrow drills, and corn dresser.

HOLTOAK AND SONS, Crosby, Leicestershire. — An assortment of best picked wood drag rakes.

HOPPE, WM. ASH, Wellingborough. — Cattle food condiment.

HORNBY AND SONS, Grantham. — Wrought iron ploughs, eight and ten-horse portable steam engines, combined thrashing machines, corn screens, turnip slicers and root pulpers, corn and seed drills, horsehoes, "Paragon" mowers and reapers, "Premier," "Governor," and other semi-manual, back delivery, swathe delivery, and self-acting reapers; washing,

wringing, and mangling machines, and indiarubber clothes wringer.

HOWARD, J. AND F., Bedford.—Steam-cultivating machinery, double-action steam cultivators, traction waggons, ploughs, harrows, clodcrushers, snatchbox slings, rope-porters, liquid manure and water carts; ridging, subsoiling, digging, paring, and potato-raising bodies; iron colonial, swing, and other ploughs; plough sledges, dynamometer, harrows, double-action haymakers, horsesakes, reapers and mowers, and twenty-horse patent safety steam boiler and super-heater.

HOWES AND SONS, Norwich.—Norfolk shooting carts, Norwich car, Norwich cart, and basket car.

HOWCUTT AND BARWELL, Leicester.—Samples of linseed and cottonseed cakes, palm-nut meal, agricultural seeds, and natural grasses of known good variety.

HUDSPITH, WM., Haltwhistle.—A miscellaneous assortment of specifically-named fern and floral "arborets."

HUMPHRIES, EDWARD, Pershore.—Combined double and single-blast thrashing, shaking, riddling, winnowing, elevating, finishing, and sacking machines; a Clayton and Shuttleworth's ordinary portable steam engine of seven-horse power.

HUNT, REUBEN, Earl's Colne.—Steam-power clover and trefoil seed drawer, horse-gear with intermediate motion, corn and seed dressers, oilcake breakers and root pulpers, turnip cutters, and root graters, steerable horsehoe and horse rake.

HUNT AND PICKERING, Leicester.—A collection of iron and wood beam ploughs; stubble-paring, subsoil, and ridging ploughs; sledge; cultivators, grubbers, and scarifiers, self-lubricating, field rollers, cylindrical land pressers, three and four beamed iron harrows, spike and chain harrows, whippertrees; seed, turnip, mangold, manure, pea, bean, steerable, and patching drills; horse hoes, mowers and reapers, knife bar, horse rake, oilcake breaker, roller corn crushers, chaff cutters, root pulpers, cheese presses, grindstones, horse-powers, rick stands, rakes, barrows, carts, sheep troughs, churns, steam engines, garden requisites, domestic utensils, &c.

HYDES, THOS., Sheffield.—Wrought-iron braced field, entrance, and hand gates; tree guards, deer, sheep, cattle, and ox hurdles, continuous fence, wire netting, garden seats, trucks, safes, coops, arches, verandahs, corn bins, water barrow, vermin-proof rick stands, unclimbable and ornamental hurdles, and portable tent for picnics.

ISON, J. AND E., Ashby-de-la-Zouche.—Two-horse combined reaper and mower (Bamlett's), Hornsby's reaper, Samuelson's self-acting side-delivery reaper, noiseless lawn mowers, sheep racks and troughs, garden fountains, vases and pedestals, garden seats, hat and umbrella stands, bronzed tables, flower-pot stands, Wheeler Wilson's lockstitch sewing machines, and Davenport ditto.

JACKSON AND FOSTER, Leicester.—Newspapers.

JAMES, ISAAC, Cheltenham.—Liquid manure distributors and pumps, flexible rubber suction pipe, wheel clod-crusher; field roller for turf, corn, or clods, water carts, gapping drills, mortar tempering machine, American clothes drier.

JEFFS AND STEVENSON, Liddington, Rutlandshire.—Two 24-teeth and two 26-teeth hayrakes; also two harvest rakes of 16 and 17 teeth.

JESSOP, J., Leicester.—Double-cylinder locomotive steam crane, with radiating derrick and travelling motion.

JOHNSON, T., Leicester.—Specimens of photographs taken from implements, machinery, ironfoundry, and carving.

JOHNSON, W. F., Leicester.—Variety of ploughs, cultivators, rollers, harrows, whippertrees, horsehoes, drills, manure carts and pumps, reapers and mowers, horseakes, drag rakes, winnowers, carts, oilcake breakers, gear work, chaffcutters, corncrushers, turnip cutters, root pulpers, lever cheese presses, curd-breaker, barrel churns, portable field-vices, lawn mowers, washing &c. machines, sheep troughs, Chinese gong, corn bins, hat &c. stands, bronzed hall-tables, whatnots, cast-iron wall-trophy, door-porter, sets of croquet, garden seats, and other fittings, ceiling ornaments, ice safes, marble chimney pieces, stoves, fenders, stack and wagon covers, resisting safes, rollers, and combined garden seat and roller.

JONES, J. M., Gloucester.—Composition for waterproofing, softening, and preserving all kinds of leather; specific for footrot in sheep, and cattle oils.

KEARSELY, H. AND G., Ripon.—Two-horse grass mowers, one-horse reaper, and combined reaper and mower, stand to hold reaping machine knives, two-rowed turnip and mangold drill.

KEITES AND SONS, Leicester.—Light sociable cart, White-chapel cart for four or less persons, and cottage pony gig.

KINDER, HENRY, Leicester.—Landau with skeleton boot, circular-fronted brougham, wagonette, and dog cart.

KINSEY, H., Nottingham.—Combined vertical engines and boilers, twelve and four-horse horizontal tanks and foundation engines, saw bench, steam pump, flour mill, and chaff cutter.

KITZMER, BENJ., Fulstow, Lincolnshire.—Six combined corn dressing and blowing machines, with two loose hoppers, for either dressing or blowing.

KNIGHT AND CO., 42, Hanway-street, Oxford-street, London.—The "Wonder" and "Surprise" sewing machines; also self-acting and ventilating nose or feed bag for horses.

LAEKWORTHY AND CO., Worcester.—"Excelsior" iron wheel and swing ploughs, iron scuffle drag harrows, and three and four-beam iron harrows.

LAUNDON AND CO., Leicester.—Chemical manures for roots, corn, grass, &c.

LAW AND SONS, Leicester.—Three to ten-horse power horizontal engines, 2½-horse power portable multibular boiler, one-horse power works, clay mill, steam hosiery press, seven and eight-row Leicestershire, corn and seed drills, two-horse vertical engine and boiler combined, saw-table, garden rollers, pig troughs, mangers, cooking ranges, hay rack, and cottage pump.

LE BUTT, JOSIAH, Bury St. Edmunds.—Self-acting seed drills, double-action haymakers, sharpening rests, "ever-lasting" malt screens, and Abercorn chairs.

LEE AND CO., Leicester.—Eight-horse power steam engines portable and fixed; vertical engines of five and 3½-horse power.

LEWIS, WILLIAM, Shrewsbury.—General purpose and light-land ploughs, lever cultivators, clod crushers and press-wheel rollers, cast iron land rolls, general purpose and chain harrows, two-coulter ridge drill for turnips, turnip hoes, "Governor" self-raking reaper, "Paragon" combined mower and reaper, and "Premier" one-horse iron-frame reaper, universal harvester, cheese press, cast-iron roller bracket, improved holder for sharpening sickles, mowers and reapers.

LYON, A., 22, Windmill-street, Finsbury.—Several mincing and sausage machines, including a machine for the dinner-table, for the use of invalids, and to assist digestion; machines for shelling green peas, broadbeans, &c.; cutting and mixing machine for hounds' food; pulper for fowls' food; bread cutter; machine for paring, coring, and slicing apples; egg whip, suet and parley chopping board, tobacco knife and board, coffee and spice mills, set of vegetable cutters, and machine for cutting French and scarlet beans.

MACNAUGHT AND SMITH, Worcester.—Tandem and Malvern dogcarts, shooting and Norway carts, Stanhope wagonette, miniature landau and brougham, and village basket cart.

M'NEILL AND CO., Bunhill row, London.—Asphalted roofing felt, inodorous bituminous felt, dry hair felt, and models in illustration.

MANCUR, E., Agent for Robert Hughes, Birmingham.—Double and single barrel sporting guns, breech loaders and muzzle loaders; rifles, carbines, muskets, pistols, and Colt's revolver.

MAPPLEBECK AND LOWE, Birmingham.—Chain harrows, cast steel draining tools, digging, border, and hay forks, spades and shovels, chaff cutters for hand and power, platform and other weighing machines, mangles, pumps for water and galvanized for manure, oilcake breakers, scarifier or tormentor, wood sack cart on iron wheels, grindstones, rack and manger, cast iron stable furniture, portable forge, brewers' hop press, strand wire fencing, tubular and angle-iron field gates, hurdles, hand road-scraping machine, single lever cheese press, iron corn bin, wood tub watering engine, three-row corn drill, galvanized water barrow, vermin traps, and models.

MARCH AND PATTISON, Leicester.—Cooking ranges and apparatus, eccentric cutting press, screw and rolling presses, pricking and skiving machines, hollow iron and block lasts, bundle of knives, swivel stand and socket, and sample board of malleable castings.

MARKALL, J. T., 7, Union-street, Whitechapel.—General joiner, for sawing, rabbeting, grooving, tenoning, boring, &c.; and self-acting cross-cut saw bench.

MARSDEN, H. R., Leeds.—Second-size patent stone breaker; stone, cement, coprolites, and ores crusher; four-horse power portable steam engine to drive the above.

MARSHALL, SONS, and Co., Gainsborough.—Nine-horse,

eight-horse, and five-horse power portable steam engines, three-horse power vertical, and two-horse steam pumping engine; combined thrashing and finishing corn dressers, straw elevators, and circular-saw benches.

MARTIN, W., 4, Shepperton-street, Islington, London.—Corroass nuts, or vegetable ivory, and miscellaneous lot of articles.

MATTHEWS, SON, AND CO., Driffield.—New corn-feeding cake as a substitute for linseed-cake.

MATTISON, WM., Bedale.—One right-hand delivery and one left-hand delivery reaping machine, each of one-horse power.

MAYNARD, R., Cambridge.—Portable sifting chaff engines, and spare knife wheels, powerful oilcake crusher, self-acting horse-rake, and six-horse portable steam-engine.

MELLARD, SOUTHWELL, AND CO., Rugeley.—Subsoil plough, lever cultivators, moulding or ridging ploughs, horse drag rakes, haymakers, pulpers, oilcake breakers, corn crushers, kibbling mills, chaff cutters, cheese presses, curd mills, malt mill, garden chairs, pig troughs, horse-power works, portable corn mill, six-horse vertical and horizontal engines, and wooden sheep rack.

MILFORD AND SON, Thorverton, Devon.—Salisbury, Leeds, and Plymouth first-prize two-horse waggon, and lifting-jack.

MITCHELL, W., Brandon.—Anti-diarrhetic compound feeding cake, and quantity of seeds.

MITCHELL AND BURGESS, Manchester.—Reaper-knife sharpeners, and portable stands for firmly holding the reaper-bar while being sharpened with emery or ordinary file.

MORRIS AND CO., Shadwell.—Collection of leather bands, fire-hose brass unions and hand branches, leather laces, fire-buckets, band screens, copper rivets and burrs, Green's patent fastener; collection of leather in hides and backs.

MORRIS, C., Leicester.—Five-motion pression and four and five-motion quadrant action beer engine, beer machines, shop rail opal and flint gas burners; two-light gas pendant in silver, opal, and ruby; ditto silver ball, opal arms, and cut drops; crystal star gas burner for ten lights, brilliantly cut with diamonds, and magnifying to 1,000 lights; also wrought-iron joiner's cramp.

MORTON AND CO., Liverpool.—An assortment of strained wire fence, straining pillars, tie and angle posts, wrought-iron gates, hurdles, galvanized roofing tiles, stiles, wicket-gate and sweep, with models of iron buildings.

MOULE'S PATENT EARTH-CLOSET CO., 29, Bedford-street, Strand, London.—Patent earth commodes and urinals, six sets of pull-up apparatus, portable iron drying stove, galvanized iron tank mounted on wheels, dustless earth and cinder sifter, sieve used for sifting the earth for the patent earth closets.

MULLINER, H., Leamington.—Wagonette, Whitechapel dog cart, basket pony phaeton, light hickory phaeton, sets of pony and other harness.

MUSGRAVE BROTHERS, Belfast.—Full-sized horse stalls with all the necessary stable furniture, cow-house fittings, iron piggy, dog kennel, encaustic and other stoves, &c.

MURTON AND TURNER, Thetford.—Corn-dressing machines, combined four-row mangold and turnip drill and lever horse hoe, small-occupation corn and seed drill, twelve-row swing steerage corn drill, twenty-row barley and seed drill, horse swathe rake, sample of steel forks, and sample of hand drills.

NICHOLSON, W. NEWZAM, Newark.—Cambridge clod crusher, land rollers, harrows, various hay makers, horse rakes, 1½ and 2½-horse stationary steam engines, portable steam engine and boilers, cake breakers, corn dressers, sack-lifters, patent clipper mower, croquet lawn mower, garden roller for pony, and double-cylinder rollers, wine racks, malt shovels, cooking and cottage bed-room gate.

NORTON, J. L., 38, Belle Sauvage Yard, Ludgate Hill, London.—Five-horse high-pressure vertical steam engine, nine-horse horizontal ditto, tube wells and pumps, apparatus for driving wells, Archimedian screw ventilators, chimney ventilators, silent fans, Root's American blower, oil tester, time and speed recorder for machinery or engines, and pressure recorder.

NYE AND CO., 79, Wardour-street, London.—Mincing, sawing, and masticating machines; also variety of mills, knife cleaners, butt taps with metal plugs, brushes, conservatory pump, &c.

OLDRAM AND BOOTH, Kingston-upon-Hull.—Six-horse

power bone mill with two pair of toothed rollers; also single-roller bone mill; two other bone mills, and six-horse power single-cylinder portable steam engine.

OWENS AND CO., Whitefriars, London.—Horizontal steam and centrifugal pumps, Cassiobury fire extinguisher, variety of other pumps and fire engines with requisite fittings, pulley and snatch blocks, water wheels, hydraulic rams, Townshend pail extinguisher, and portable engine tanks.

PAGE AND CO., Bedford.—Draining pipe, tile, and brick-making machines, leverage brick press, various ploughs, feed rollers, seed harrows, drag and diagonal iron harrows; turnip, bean, steerage, and combined expanding horse hoes; horse hay, corn, and stubble rakes; steam, horse, and hand-power chaff cutters; linseed-cake and bean mills, scuffers, corrugated iron sheep and pig troughs, and bench drilling machine.

PARKER, J., Kington, Leicestershire.—Thirty-eight kinds of English wool, twenty-six specimens of planked timber, twenty transverse sections cut from the root end of trees, nine patterns of veneer, five rolls of oak and other bark, and miscellaneous collection of wood specimens—all from the estate of the Duke of Rutland.

PARKES AND CO., Birmingham.—Sets and assortments of cast steel draining tools, digging and other forks, various tools for agricultural purposes, dung drags, potato shovels, centre strap, spades and shovels, axes, hooks, hoes, and hatchets.

PARE AND HAMSHAW, Leicester.—Cosy carts, Ariel wagonette, park phaeton, circular-fronted brougham, wagonette with moveable head, dogcarts, sociable landau, and ladies' car.

PEACOCK AND BUCHAN, Southampton.—Assortment of anti-corrosive metallic paints; also paint brushes, and patent can opener.

PEARSON BROTHERS, Gainsborough.—Few samples of pure linseed cake, ordinary cotton-seed cake, ditto of extra quality, samples of finest Petersburg linseed, and of Egyptian cotton seed.

PEIRCE, A. F., 109, Hatton Garden, London.—Tubular wheelbarrows; rotary general purpose liquid manure barrow pump, garden or fire engine; other pumps, self-coiling horse-reel, perpetual garden engines, corn bins, dust bins, portable furnace, step chair and expanding step ladders, straight ladder, tubular counterbalance, cash stand, expanding clothes horse; pig, sheep, and cattle troughs; taper-tail tripod manure pump, vase and pedestal, sack trucks, balcony chairs, piggeries or dog kennels, horse-rake; shovels, syringes and garden engines, aquapulta, flour bins, galvanized iron adjusted and stamped dry measures (from half-a-pint to a bushel), seamless milk cans, turnip skips, pails, buckets, economic potato washer, cinder sifter, knife cleaner, carpet sweeper, and box churn.

PENNY AND CO., Lincoln.—Radiating grain and seed separator, linseed dresser, adjustable rotary corn screens with blower and stone separators attached, also combined with winnowing and dressing apparatus; malt, gravel, lime, and coal screens; sack lifters with rack and chains, wire game netting, mea safes, woven wire, garden seats, arches, verandahs, and flower stands.

PICKERING, J., Stockton-on-Tees.—Patent pulley blocks and lifting chain, for raising and lowering weights from 5 cwt. to 2 tons.

PICKSLEY, SIMS, AND CO., Leigh.—"Excelsior" clod crusher, collection of chaff-cutters, oat and bean crushers and mills, corn crushers; turnip pulper, slicers, and strippers; Gardner's single and double-action turnip cutters, horse-rakes reaper, mower, and combined reaper and mower, American horse-rakes, grindstone and strong iron trough, wringing and mangling machines, pigtroughs, lawn mowers, garden seats, and rollers, sack trucks, and two-horse combined vertical steam engine and boiler.

PINFOLD, J. D., Rugby.—Two brick-and-tile-making machines, to make 15,000 and 20,000 solid or perforated bricks per day; also self-acting brick cutter, and a brick press.

POCHIN AND SON, Leicester.—Variety of sewing machines and writing desk, bronzed garden seats, arbour work-table, garden arches, engines, syringes, and seats; sets of croquet, meat safe with sliding shelf, birdcages, flower stands, corn bins, washhand stands, and patent cooking pot.

POCHIN, S. D., Leicester.—One hundred draining pipes, twenty roofing tiles, and six manger blocks.

PORTER AND CO., Lincoln.—Comstock's rotary spader for digging between hop-rows, and as a cultivator for light

soils; ditto for strong soils, and doing the breadth of four ploughs.

**POWIS, JAMES, AND CO.,** York Road, Lambeth.—Seven-horse power combined vertical engine and boiler; spoke-maker; four-cutter moulding and planing machine; steam-power tenon-cutter; endless-band sawing machine; circular and frame saw sharpener; noiseless disc fanblower; improved general joiner; self-acting circular-saw bench; hard or soft wood mortiser; mortiser, tenon-cutter, and borer; and mitre-cutter.

**POWIS AND CO.,** 51, Gracechurch-street, London, E.C.—Hand power mortising, tenoning, and boring machines; band-sawing machines; self-acting circular-saw bench, and improved joiner's saw bench; universal joiner, trying-up and planing machine, saw-sharpener, three-cutter moulding machine, and ten-horse power portable steam engine.

**PRIDMORE, GEO.,** Syston, Leicestershire.—Machine for winnowing all kinds of grain, and corn-dressing machine.

**PRIEST AND WOOLNOUGH,** Kingston-on-Thames.—Four lever corn-drills, grass-seed drill for horse power, manure distributor, drill for turnips and manure on the ridge; patent lever horse hoes, for light, mixed, and heavy lands; beam horsehoe for hoeing grain and root crops at any distance apart; three and five-tined horsehoes for wheat, turnips, mangold, &c.

**PROSKAUER, H.,** 69, Great Chart-street, Hoxton, London.—Transferable centres, corners, and borders, for ornamenting leather, papier-mâché, and japan goods; ditto landscapes and views, for flower-boxes and vases; bouquet [bouquets?] and flowers for transferring to glass windows; animals and their heads, for japan goods; ornamental plain and fancy covering, for carriage bodies; and miscellaneous sheets, for glass, &c.

**RANSOME AND CO.,** 10, Essex-street, Strand, London.—Weston's quick motion, triple-sheave, and other differential pulleys and chains; two and three-sheave "London pattern" rope pulley blocks; Haley's lifting jacks, hydraulic and agricultural ditto; Wilson's patent spanners, Schwartzkopf's self-acting spanners, automaton ditto, crank spanner, ratchet brace, freegrit grindstone, portable vice bench, roller punch, steam-pressure gauges, Schaffer's counting machine, Ransome's anti-friction metal, portable forge, wrought-iron parallel vice, sample of bolts and nuts, oxygen fire bar, needle lubricators, leather belting, driving band links, liquid manure pump, annular boiler, atmospheric churns, sack trucks, carriage setter, corn and flour bins, hothouse engine, garden engine, edge-cutting machine, garden seats, scales, traps, cooking apparatus, mincers, egg testers and beaters, knife cleaner, &c., and Long's Non-poisonous specific for sheep and wool.

**RANSOMES AND SIMS,** Ipswich.—Pony and one-horse ploughs, iron beam wheel and swing ploughs, digging and paring ploughs, double furrow ploughs, turnwrest and ridging or subsoil ploughs, potato raising, and other ploughs, iron plough sledge, new and improved plough wheels and irons, whippetrees and pomeltrees, harrows, horseshoes, haymakers, bean cutters, various mills, root-pulpers, turnip and chaff cutters, iron gear for two horses, rotary corn screens, lawn mowers, pig troughs, pans, single-slide expansion steam engines, double and single-blast steam thrashing machines, eight-horse power self-moving traction steam engine, improved straw elevator, patent caloric engine.

**RAVENSCHROFT, E.,** 150, Fleet-street, London.—"The Farmer" newspaper, "Journal of Agriculture," and "Country Gentleman's Magazine."

**READING IRON WORKS COMPANY.**—Read's subpulverizer plough, Spencer's roller and clodcrusher, six-horse high-pressure and condensing engine, seven-horse portable steam engine, 54-inch single-blast combined thrashing machine, horse-power thrashing machine and gear, American "clipper" mowing machine, saw bench with boring apparatus, double-action hay machine, lever horsehoe, thirteen-coulter chain corn drill, gorse-bruising machine, and oilcake mill.

**REVES, R. and J.,** Westbury.—Liquid manure, corn, and seed drills, broadcast manure distributor, water carts, harrow pump, and delivery pipe for water barrels.

**REID AND CO.,** Aberdeen.—General-purpose lever corn drill, and combined with horsehoe, horsehoe, barn weighing-machine, deer and cattle strained fence of galvanized strand wire and intermediate standards and straining pillars, with self-fixing wire straining post.

**RENDLE, W. E.,** 68, Welbeck-street, London.—Fruit-tree

and plant protectors, collection of agricultural and garden seats, and collection of agricultural and horticultural books.

**RICHES AND WATTS,** Norwich.—Two-horse-power portable steam engine, two-horse American heated-air engine, improved American grist mill on travelling carriage and another on low stand, also one to be driven by horse power; "Eureka" grist mills, "Domestic" and "Universal" grist mills and flour separator, aspirator for hand-power, one of greater capacity arranged with a riddle; "Excelsior" grain separator, American cradle washing and wringing machines, and carriage jack.

**RICHMOND AND CHANDLER,** Salford.—A variety of chaff cutters and corncrushers, horsegears, rootwashers, turnip-cutter, steaming apparatus, bread-kneading machines, four-horse steam engine, chaffcutters, and corncrusher.

**RIDE, JOSEPH,** Leicester.—Four-horse-power horizontal high-pressure steam engine, eight-horse Cornish boiler, portable corn mill on wooden frame, line of wrought-iron turned shafting, bearings, and pulleys; wrought-iron cylinder, stop valves, 18-inch pulley, man-hole lid for steam boiler, wrought-iron ring for joining boiler flues.

**ROBEY AND CO.,** Lincoln.—Eight-horse-power portable steam engine, thrashing and finishing machine, single-dresser thrashing machine, three-horse vertical engine with single cylinder, straw elevator, circular-saw bench, eight-horse traction engine, and fixed or portable corn mill.

**ROBINSON, ALFRED,** Leicester.—One-horse-power gas engine, requiring neither boiler, chimney, fuel, nor stoker; and steel-roller corncrusher or grinding mill.

**ROLLINS, J. G.,** Old Swan Wharf, London Bridge.—American pumps, suction, force, pitcher-spout, and yard; American aquarius, hydraulic rams, hay and manure forks, hayrakes, Nova Scotia grindstone, India pond extra scythe stones, horse rakes, thermometer churns, small American implements for farm and household use, weighing machines, &c.

**ROWELL AND CO.,** 9, Victoria Chambers, Westminster.—Improved fence, and also with gate combined, and an assortment of improved patent straining fence.

**RUSTON, PROCTOR, AND CO.,** Lincoln.—Portable steam engines, of six, eight, ten, and twelve-horse-power; double and single-blast thrashing and finishing dressing machines; improved straw elevator, and circular-saw benches.

**RYLAND, ALFRED,** Birmingham.—Assortment of Cambridge's patent firebrakes, steam pump, white metal for journals, malleable iron castings for agricultural implements, steel castings, and patent block composition for prevention and removal of incrustation in steam boilers.

**SALMON, TOMLIN, AND CO.,** Kettering.—Eccentric treadle and strong screw presses for cutting out boot and shoe soles, single and double; rollers for leather, and wrinking press; pricking machine for sprigging, split lift cutter, skivers for stiffeners, strip beader for uppers, six men's punches, iron lasts; assortment of thirty-six sickles; sheep shears; reaping, bagging, and bean hooks; hedging hooks, &c.

**SAMUELSON AND CO.,** Banbury.—Self-raking reapers, one and two-horse "Eclipse" reapers, grass mowers, combined reapers and mowers, turnip cutters, and lawn mowers.

**SAWNEY, WM.** (Trustees of) Beverley.—Winnowing, blowing, screening, and cliver machines, onehorse manual delivery reaper, sack elevators, hay collectors, sheep racks, garden seats, treadle grindstones, diamond swing for two children, and improved riddler.

**SHAND, MASON, AND CO.,** 75, Upper Ground-street, London.—Steam fire-engine as used by the metropolitan and other fire brigades, the British Admiralty, Russian, and other governments; also volunteer brigade fire-engine.

**SHARMAN, WARREN,** Melton Mowbray.—Several bundles of hay and corn rakes, drag rakes, twitch, couch, and stubble rakes, scythe sheaths, corn and flour bins, sack trucks, strained wire fence, meat safes, garden chairs, scuttle measures, &c.

**SHILLINGTON, T. F.,** Belfast.—Reaping and mowing machine with continuous cutting parts for saving nearly half the draughts and fitted with patent platform.

**SHUTTLEWORTH, J.,** Hathersage, Derby.—Pair of Peak millstones of the best description.

**SILVESTER AND CO.,** 16, St. James's Walk, Clerkenwell, London.—American knife sharpener and scale, patent bulling; stop valves, hammer, and steel measure or tape with side spring.

**SIMPSON AND HUTTON,** Northampton.—Seven horsepower portable steam engine.



SIMPSON, A., Westmoreland Walk, Chiswell-street, London.—Assortment of cattle spire, farinaceous food, case of silver cups and other prizes.

SKETCHLEY, W., Weymouth.—Six-horse portable steam engine, universal joiners, Betty saws, and mortising machine.

SMITH AND Co., Harbury, Warwickshire.—Combined mowing and reaping machine, horse rake and general drill, and general purpose horsehoes.

SMITH AND GRACE, Thrapston.—Grist mills for any kind of grain for hand or horse power, several chaff cutters, combined turnip cutter and root pulper, bean and cake mills, horse rake, turnip thinner and horsehoes combined.

SMITH, J. H., Conington.—Two-wheeled traps, termed "The Elect or Ladies' Dog-cart," and new windlarm for removing carriage head.

SMITH, WM., Foston, Yorkshires.—Self-feeding sheep racks, suited to all kinds of food, hayrack and shepherd's hut.

SMITH, Wm., Kettering.—Horse-hoes with steerage, and made with lever to lift at land's end, and to travel from field to field; winnower and blower, grindstone with a V edge, self-feeding reaper with Smith's patent scraper, sugar choppers, currant and raisin dressing machine.

SMITH, W., Royal Polytechnic, Regent-street, London.—Moveable letters, anti-corrosive silver-faced, for marking linen, and warranted not to oxidize.

SMITH AND SONS, Peasenhall.—Small-occupation corn-drill, nine to fifteen-row "Eclipse" corn-drills, a fifteen-row and fourteen-and-three-row corn drill, seven-feet manure distributor; turnip, mangold, and manure drill, and general-purpose drill.

SPENCER, J. AND T., Leicester.—New Guide to Leicester and map of the town; Guide to Charnwood Forest, Bradgate Park, &c., and stereoscopic slides.

SPONGE, J. O., 104, Fulham Road, London.—Revolving blow pipe; sausage and general mincing machine.

STAREY, T. R., Nottingham.—Light wagonette to form small omnibus for one or a pair of horses, phaeton in fine osier-work, framed cart, built of steel and hickory, and Queen's pattern basket-carriage to hold four persons.

STARTIN AND Co., Birmingham.—Village cart, park phaeton, mail wagonette, miniature broughams and barouche, and side-light landau.

STAYNES AND SONS, Leicester.—Leather and gutta percha endless driving bands, suction and delivery hose, waterproof covers, and indiarubber washers.

ST. PANCRAZ IRONWORK CO., Old St. Pancras Road, London.—Loose boxes and stalls with all necessary stable fittings and furniture, sheep and cattle hurdles, wicket and field gates, tree guards, garden seats, galvanized cast-iron sashes for cottages, pig troughs, feeding trucks, and turntables.

SUMMERSALES AND SON, Keighley.—Collection of washing, wringing, and mangling machines, on the dash-wheel principle.

SUTTON AND SONS, Reading.—Large collection of 100 specimens of dried grass plants, and samples of grass seeds; complete assortment of the principal kinds of agricultural, horticultural, and floricultural seeds; collection of the leading varieties of agricultural roots, and growing samples of various kinds of seeds in pots.

SWAIN, R., Braunston, Northamptonshire.—Four farm or poultry-yard gates.

TANGYE BROTHERS AND HOLMAN, 10, Lawrence Pountney Lane, London.—Special steam pumps with duplex boiler-feeder, four-horse portable steam-engine with cannon pump, differential pulley-blocks, hydraulic lifting and pulling jacks and punching bear, "Niagara" and other force pumps with hose, pails, hoisting crab, haley and screw jacks, rope blocks, and "Britannia" tank fire-engine.

TANNED LEATHER COMPANY, 81, Mark Lane, London.—Samples of driving straps and endless bands, with strap leaces.

TASKER AND SONS, Andover.—Twelve-horse power double-cylinder traction engine (Clayton's make); windlarm, with ropes, rope porters, and anchors complete for steam cultivation; Smith of Woolston's wrought-iron cultivator; apparatus for scarifying and drilling corn and other seeds, harrowing, and rolling in one operation, and to be worked by steam; harrow to be worked in conjunction with Smith's cultivator; set of three four-beamed trussed frame iron harrows, water cart, six-horse power portable steam engine, single-blast combined portable thrashing machine, improved portable straw elevator,

corn-dressers, two-horse portable thrashing machine, and screw jack.

TAYLOR AND Co., Adelaide Place, London Bridge.—Chaff-cutters, corn crushers, weighing machines, barrow Californian lift and force pumps, farmer's boiler, grindstones on iron and wooden frames, portable forge and bellows, bench and vice, corn bins, American churns, lawn mowers, garden seats, tables, arches, flower baskets, stands, chairs, and stools, also self-adjusting scythes.

TAYLOR, E., No. 1, Sussex-street, Manchester.—Eccentric churns, washing, wringing, and mangling machines.

THOMAS, C., Stratford-on-Avon.—Flexible side and other saddles, safety stirrup, Pelham curb and gag roller, variety of bridles and noseband.

THOMPSON, R. W., 3, Moray-place, Edinburgh.—Road steamer traction-engine on vulcanized indiarubber patent wheel tires, with vertical pot boiler.

THORN, CHARLES, Norwich.—Shooting carts, village phaeton, wagonette, Norwich car or ladies' carriage and suitable for children, silver and brass mounted single oob harness.

TINKLER, R., Penrith.—Churns of various sizes.

TIPPER, B. C., Birmingham.—"Medicated mystery;" and scab and tick ointment and powder.

TOMLINSON AND HAYWARD, Lincoln.—Butter powder for improving the quality and increasing the quantity of butter, making it sweet and firm in the hottest weather.

TOPHAM, C., Coleman-street, London.—Regulating machine for cutting food for poultry, suet cutter, sausage mincer, masticator, sausage filler, Canadian oilstone, screw wrenches, digging forks, self-expanding boiler-tube-cleaning brush and metal scraper, spiral wire and solid tube brushes.

TURNER, E., R., AND F., Ipswich.—Portable steam engines of four to ten-horse power, five-horse improved traction engine, and ten-horse fixed steam-engine; combined thrashing and dressing machines, straw elevator grinding and crushing mills, oilcake breakers, chaffcutters, malt mills, maize sheller, circular-saw bench, and gear work with intermediate motion.

TUXFORD AND SONS, Boston.—First-prize eight-horse-power portable steam engine, ten-horse improved horizontal-cylinder engines, sixteen-horse ditto with two cylinders, eight-horse steeple engine; one, two, three, four, six, and eight horse improved horizontal portable steam engines; prize ten-horse fixed steam engine; combined portable single-blast thrashing, shaking, and winnowing machines for four and six horse power engines, fitted with Coulson's spring hangers, Goucher's beaters, and improved riddles and shakers; combined thrashing, shaking, and perfecting machine; patent straw elevator to work at any angle, with self-feeding table and twenty-eight feet spout; double grinding mills, with one pair of French and one pair of Peak stones; portable single grinding mill in metal case and frame; Appold's centrifugal pump to throw 350 gallons per minute, and improved circular-saw table with parallel fence plate.

TYLER, WILLIAM, Melton Mowbray.—Wagonette, light dogcart painted blue, light varnished dogcart, and improved varnished Whitechapel.

UNDERHILL, W. S., Newport, Salop.—Five, seven, and nine-tine cultivators; six-horse power portable steam engine, traction engine, and thrashing, dressing, riddling, and finishing machines; blast elevators, Honnington scarifiers, twin-harrows, horse-rakes, two-furrow turnip drill, patching drill, ryegrass and cloverseed drill, hoes, grubbers, chain and Bedford harrows, cow crib, hand cart, sheep rack, cheese press, varnish-heating stove, and patent fences.

UNITE, J., 291, Edgware-road, London.—Model of thirty-load rick cloth, yellow and black and white cloths, waterproof and woollen trace and shill [thill ?] cloths, corn sacks, white anti-friction wheel grease, nosebags, sack tyes, horsecloths, tarred and white collar reins, web head halters, head stalls, hay rope, kersey horsecloths, hemp sheep netting, Archangel mats for fruit trees, and netting for same.

UPTON, JOHN, Atherstone.—Spring wagon for agricultural and miller's purposes, and  $\frac{1}{4}$  inch cart for general purposes, with harvest gear.

VARTY, NATHAN, Royston.—Six patent self-cleaning horse hoes, fitted with lifting apparatus for light and uneven land, and also for heavy land; two self-cleaning root-hoes.

VICKERS, SNOWDEN, AND MORRIS, Doncaster.—Wheel and swing ploughs, two-row combined mangold and turnip

drill, turnip cutters and slicers, and self-expanding horsehoes for light and heavy land.

WADDE, WM., Leeds.—Several revolving barrel churns, making from 2 to 80lbs. of butter, with electroplated air-discharge valves; also two tub churns.

WALKER, W., Titchley, Notts.—Fourteen-row corn, man-gold wurzel, and turnip seed drill, with steerage; 24-row cloverseed and ryegrass drill, with steerage, and easily worked turnip cutter.

WALLIS, HASLAM, AND STEEVENS, Basingstoke.—Eight-horse-power portable steam engine, and 54-inch double-blast thrashing and finishing machine.

WARNER AND SONS, 8, Crescent, Cripplegate, London.—Annular sail wind engine; a variety of lift and force pumps, fire engines, garden engines, swing water barrows, syringes, aquajets, fountains, firebells, steam fittings, sluice valves, "Noria" water lift, and chaff cutter for wind engine.

WEBB AND CO., Worcester.—Bags of dissolved bones; bean, pea, and vetch manure; wheat and potato manures, bone superphosphate of lime, nitrophosphate, turnip and mangold manure, hop manure, concentrated bone manure, ground bone ash, shoddy manure, Angamos and Peruvian guano, and palm-nut meal.

WEBB, L., Stowmarket.—Leather machine bands in great variety, fire buckets, delivery and suction hose, leather laces for lashing bands, cut soles from English butts, tan sheep leather, wool lamb skins, strap butts, and tanned calf-skins.

WEIR, E., 142, High Holborn.—Washing, wringing, and mangling machines; indiarubber wringers and starchers, mangles, gofferers, clotheshoes, chair and steps, lawn garden seat, portable wardrobe, ladies' foot holders, sabots, Norwegian self-acting cooking apparatus, "lightning" apple-parer, fruit-press, mincers and sausage makers; mills for grinding coffee, pepper, spice, rice, &c.; egg and butter [batter?] whisks, zinc syringes, burglar alarm, portable folding ladder, &c.

WHEELER, BENJ., Nottingham.—Simple, plain, well made, and portable conservatory, and two garden chairs.

WHEELER AND SON, Gloucester.—Collection of farm seeds.

WHITE, JOSEPH, 15, Trinity-street, Southwark.—Specimens of oil-feeders and needle lubricators, artificial dams, save-all pyramidal oilcans, barn lanterns, leather bands and straps, lashing laces and thongs.

WHITEHEAD, J., Preston.—Handpower drain pipe, tile, and brickmaking machines; double-box steam-power ditto; improved hand-power brick pressing machine, solid brick maker, and six-horse-power portable steam engine.

WHITMEY AND CO., 103, St. John-street, Clerkenwell, London.—Several corncrushers, three steel flour mills, also mills with Derbyshire Peak and French burr stones for power, domestic flour mills for handpower, linseed and malt mills, flour-dressing machine, and sausage makers.

WILKINS, T., Ipswich.—Two, four, and five-horse portable steam engines; mills for grinding corn and pulse of every description, charcoal, spices, drugs, &c.

WILKINSON AND SON, Ely.—Lever self-adjusting horse hoe adapted to all the prevailing methods of drill culture.

WILLIAMSON BROTHERS, Kendal.—Six-horse power portable steam engine, vortex turbine wheel, whirlpool centrifugal pumps and blowing fan.

WILSON AND CO., 210, Regent-street, London.—Hand and treadle sewing machines of various descriptions, plain and handsomely finished.

WILSON AND CO., 5, Lime-street, London.—Twelve-horse double-cylinder portable steam engine; one-horse portable pumping and driving steam engine; donkey steam pump for feeding boilers; universal steam engine of one-man's power, and specimen of impregnable iron fencing.

WILSON, J., Penrith, Cumberland.—Bottles of "The Preservative" and "Perfect Cure" sheep bathing, "Improved sheep-dipping powder" and "Dipping Composition."

WINDOVER, C. S., Huntingdon.—Huntingdon wagonette made of hickory and steel, Hilton dog-cart, park phaeton, Dagmar pony cars, Stanhope phaetons, miniature circular-fronted broughams, boat-shaped barouche; other dog-carts, phaetons, and sociables, American buggy, and Southern Brett.

WOOD, WALTER A., 77, Upper Thames-street, London.—Grass-mowers, and one and two-horse reapers; also a Nova

Scotia grindstone for sharpening the knives of mowing machines.

WOODS, COCKEDGE, AND WARNER, Stowmarket.—One, two, and four-horse vertical steam engines; 42-inch and 36-inch portable French burr corn-grinding mill; 30-inch Peak stone portable corn-mill; two-horse power portable corn-mill, "universal" mill, crushing roller mills, pulpers, turnip cutters, oilcake breakers, horse-works, two-horse thrashing machines, saw tables, poppy and weed extirpator, zigzag roll, improved one-horse carts, perfect pig-troughs, asphaltum apparatus, root pulper, double barley rolls, Cambridge's press wheel roller, three-cylinder field and pasture roll, ditto with four cylinders, eight-horse double-cylinder vertical engine, large chaff cutter; line of shafting, with pulleys, blocks, standards, &c.; two-horse mower and reaper; model drying apparatus for agricultural produce.

WOOLLEY, JOSEPH, Allestree, Derby.—Derbyshire waggon, strong one-horse cart, light ditto, market cart, and tandem Scotch cart.

WRIGHT AND SON, Great Bently, Essex.—Grass seeds and specimens, and agricultural seeds and roots.

WRIGHT, H., Boston.—Straw elevators and stacking machines, also portable horse works.

### THE RECEIPTS AT LEICESTER.

Brick and Tile Yard (one day, 408 persons, £102.)  
Sale of Catalogues about £800.

First day (5a.)	3,052 persons	£763 18 0
Second day (2a. 6d.)	10,290 "	1,291 5 3
Third day (2a. 6d.)	5,987 "	813 2 8
Fourth day (1a.)	52,462 "	2,629 3 10
Fifth day (1a.)	24,538 "	1,226 18 0

96,329

The following Comparative Returns were issued on Monday night:—

### BURY ST. EDMUNDS, 1867.

First day (5a.)	910 persons	£237 15 0
Second day (2a. 6d.)	4,465 "	557 11 0
Third day (2a. 6d.)	7,880 "	985 8 6
Fourth day (1a.)	33,126 "	1,657 15 0

46,387

### PLYMOUTH, 1865.

First day (5a.)	1,063 persons	£265 16 0
Second day (2a. 6d.)	4,767 "	595 11 10
Third day (2a. 6d.)	17,269 "	2,150 0 0
Fourth day (1a.)	24,943 "	2,147 14 10

60,042

It will be seen that the one bad day at Leicester was on the Saturday, attributable to the end of the week and the inconvenient arrangement of cutting the Show time in two.

### SHORTHORNS AT THE COUNTY OF CORK SHOW.

—The annual show of the County of Cork Agricultural Society was held on Thursday, July 24, in the City of Cork Corn-Exchange. The exhibition of Shorthorns was a good one, as may be inferred when we find Mr. Smith, of Islandmore, in the field with his prize-taking bull Liector, from the Mullins-bro' herd, and also "Chief of Lothian," from the Ardret pastures, which stood first and second respectively, against five others which formed the section of aged bulls. In the yearling bulls, Photograph, bred by Mr. Welsted, took the Meade and Garde £50 cup as the best yearling bull in the yard, Mr. Henry Barry, Ballyadam, coming in second with Ali Murad, a Soubadar bull out of a cow, Sally, also from Mr. Welsted's herd. Mr. G. Colthurst got highly commended for Knight of Lothian. Of fourteen bull calves Mr. Smith, of Islandmore, with The Governor, bred by him, by Liector, took also the Welsted Challenge Cup, as the best bull calf in the yard. Mr. Welsted had won this cup twice in succession; Mr. H. Massey's unnamed calf was the second; J. Downing's Pasha and Mr. Welsted's Royal Knight were highly commended. In the

cow section Mr. Welsted's Rosette led the way, Mr. Barry's Sally, a Welsted cow, taking second; Mr. Meade's, of Ballymartle, and Mr. H. Massey's commended. In two-year-old heifers Mr. Welsted's Princess Primrose was first, as also the winner of the prize for the best two-year-old heifer bred in the county, Mr. George Ronaldson coming in second. In the

yearling heifers, Colonel Fisher took the first prize, and the Meade and Garde Challenge Cup, Mr. Welsted's Rosanna second, and also the prize for the best yearling heifer bred in the county. Mr. H. Massey's Wood Rose highly commended. Mr. J. Downing, Ashfield, Fermoy, took the prize for the best Shorthorned heifer calf.

## ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

MONTHLY COUNCIL, Wednesday, August 4, 1868.—Present: His Royal Highness the Prince of Wales, K.G., president, in the chair; Viscount Bridport, Lord Chesham, Sir A. K. Macdonald, Bart., Mr. Bramston, Mr. Cantrell, Colonel Challoner, Mr. Clayden, Mr. Druce, Mr. Edmonds, Mr. Brandreth Gibbs, Mr. Hassall, Colonel Kingscote, M.P., Mr. Ransome, Mr. Shuttleworth, Mr. Torr, Mr. Wells, Professor Simonds, and Dr. Voelcker.

The following members were elected:

Addison, J., Brookfield, Gretton, Uppingham  
 Best, James, jun., Hill Top, Tenbury  
 Booth, John, Shenstone Hall, Lichfield  
 Bowen, James Bevan, M.P., Llwyngwair, Haverfordwest  
 Bramley-Moore, J., Gerrard's Cross, Bucks  
 Burnham, Robert, Leicester  
 Butler, Richard, Radcliffe-on-Trent  
 Carding, Frank, Combs Farm, Farnsfield, Southwell  
 Costaworth, John, West Wickham, Bromley, Kent  
 Cresswell, Mrs. Gerard, Appleton Hall, King's Lynn  
 Culley, George, Fowberry Tower, Belford, Northumberland  
 Dowdeswell, Arthur C., Pall Court, Tewkesbury  
 Gray, Edward, Moscow Works, Sheffield  
 Hamel, Alfred John, Lancaster Place, Leicester  
 Harris, Charles T., Knighton House, Leicester  
 Harris, John Dove, Ratcliffe, Leicester  
 Harrison, Colonel B., Kynastone, Ross  
 Harrold, G. A., Leicester  
 Idlip, Francis W., Collegiate House, Leicester  
 Jarrold, Joseph, Leicester  
 Johnson, T. F., Stonegate, Leicester  
 Jones, John, Mars-y-pandy, Tan-y-llyn, Merionethshire  
 Judkins, Mrs., 4, Ludgate Hill, London, E.C.  
 Lamin, William, Bestwood Park, Nottingham  
 Lewis, Samuel, Audley, Newcastle-under-Lyne  
 Mannington, Wm., Laughton Place, Hurst Green  
 Meakin, Henry James, Shobnall Grange, Burton-on-Trent  
 Moore, George, Whitehall, Wigton  
 Oakley, Christopher, 10, Waterloo Place, London, S.W.  
 Ord, George, Brixton Hill, Surrey  
 Petre, Edward, Whitley Abbey, Coventry  
 Richardson, Francis E., Brumshall, Uttoxeter.  
 Roeling, Edward, Droxford, Southampton.  
 Roselyn, The Earl of, Easton Lodge, Dunmow, Essex.  
 Slee, Henry H., Leicester.  
 Stamper, Thomas, Highfield House, Oswaldkirk, York.  
 Stone, Samuel Francis, Eldon House, Leicester.  
 Summerfield, Joseph, Green Barn, Lichfield.  
 Taylor, Thomas Swift, The Frith, Leicester.  
 Thompson, James, Leicester.  
 Thorold, Sir J. A., Bart., M.P., Syston Park, Grantham.  
 Tinkler, Henry, Holmfirth, York.  
 Townsend, George, Oulton Cottage, Lowestoft.  
 Walker, Frederick T., 39, Harley Street, London, W.  
 Warner, Thomas, The Abbey, Leicester.  
 Webster, Charles, Waltham Abbey, Essex.

FINANCE.—Major-General Viscount Bridport, Chairman of the Committee, presented the Report, from which it appeared that the Secretary's receipts during the past month had been examined by the Committee, and by Messrs. Quilter, Ball, and Co., the Society's accountants,

and were found correct. The balance in the hands of the bankers on July 31 was £7,288 10s. 9d., the sum of £2,000 remaining on deposit. Cheques to the amount of £6,596 4s. 1d. were ordered to be drawn. This report was adopted. The half-yearly audit of the Society's accounts to the 30th June, 1868, took place on the 4th instant.

COMMITTEE OF SELECTION.—The name of the Earl of Lichfield, who resides in the same district as the late Earl of Shrewsbury, was recommended to fill the vacancy in the Council, and having been proposed by Colonel Challoner, and seconded by Viscount Bridport, his lordship was unanimously elected a member of Council.

Mr. Brandreth Gibbs having moved that a committee consisting of the stewards and honorary director be appointed to consider and report on the means to be adopted in future to ensure the awards being issued in due time, the motion was agreed to. Mr. Torr gave notice that he would bring on in November his motion that the Society have a special reporter at the Council and other meetings. Viscount Bridport moved that a committee consisting of His Grace the Duke of Richmond, K.G., Earl Cathcart, Viscount Bridport, Lord Chesham, Sir A. Macdonald, Bart., Mr. Bramston, Mr. Dent, M.P., Mr. Edmonds, Mr. Brandreth Gibbs, Mr. Wren Hoskyns, Mr. Randall, Mr. Thompson, and Mr. Wells be appointed to consider the testimonials of candidates for the office of Secretary and Editor, and to report the result of their investigations to the Council in November.

MANCHESTER MEETING. — The following noblemen and gentlemen were appointed a Committee for the Society's Country Meeting in 1869:—Duke of Richmond, K.G., Chairman; Duke of Rutland, K.G.; Earl of Powis, Viscount Bridport, Lord Chesham, Lord Kesteven, Lord Portman, Lord Tredegar, Lord Vernon, Lord Walsingham, Hon. H. G. Liddell, M.P.; Sir E. C. Kerrison, Bart.; Sir Henry R. Vane, Bart.; Sir Watkin W. Wynn, Bart.; Mr. C. E. Amos, Mr. Charles Barnett, Mr. Edward Bowly, Mr. Charles S. Cantrell, Colonel Challoner, Mr. John Clayden, Mr. D. R. Davies, Mr. J. D. Dent, M.P.; Mr. B. T. Brandreth Gibbs, Mr. E. Holland, M.P.; Mr. Richard Hornsby, Mr. C. Wren Hoskyns, the Mayor of Manchester, Mr. Richard Milward, Mr. Thomas Pain, Mr. Charles Randall, Mr. R. C. Ransome, Mr. C. S. Read, M.P.; Mr. William Sanday, Mr. Joseph Shuttleworth, Mr. N. C. Stone, Mr. William Torr, Mr. James Webb, Mr. William Wells, Major Wilson, Mr. Jacob Wilson, the Stewards.

The Agreement with the Mayor and Town Clerk of Manchester having been read and considered, the common seal of the Society was affixed by the secretary.

## THE YORKSHIRE AGRICULTURAL SOCIETY.

## MEETING AT WETHERBY.

Notwithstanding that the material of the Yorkshire Show is mainly supplied from the county itself, the meeting at Wetherby came very much in echo or rather in commentary on the doings at Leicester. Almost all the great winners in all the great classes, such as the Shorthorns, the riding horses, the long-wools, and the pigs, were here again ready to try further conclusions; and as any man who had acted as a judge at the one meeting was declared to be ineligible for the other, a certain additional interest was thereby attached to the proceedings. And, certainly, these second "sets" appeared by no means inclined to be influenced by any ruling of any other learned brethren; an independence of action more particularly observable in placing the cattle, or in other words the Shorthorns, for no other kind of beast is exhibited in Yorkshire. With, in all its chief features, precisely the same competition, seconds were put first, firsts were put third, while some were put out and others left in, on the inexorable axiom that every man may have an opinion of his own. There was not so much to do at Wetherby as there had been at Leicester, neither was this altogether so well done, and at the very outset the award over the old bulls created something like a sensation. Amongst those that met here again were Mr. Booth's Commander-in-Chief, Mr. Peel's Knight of Knowlmere, Mr. Lynn's Prizeman, and Mr. Fawkes' Friar Bacon, some of which in the interim have been on their travels, the Commander and Prizeman winning at Grantham, and the Knight of Knowlmere at Heslington. Still, even the very hot weather had not told much on any of them, and the four may be taken as entering the ring in much the same form in which they did at Leicester. However, after a long consultation, during which Mr. Stephenson seemed to be holding out, the Royal award was reversed, and the white put first and Mr. Booth second. Commander-in-Chief, as we have already written of him, may not be at all points a perfect animal, but he is surely superior to Knight of Knowlmere; and should the two come together again before a fresh lot of judges, we doubt if the Wetherby decision can ever be confirmed. The white is in reality not much of a show bull; for he is ungainly in his action, drooping in his carriage, and his chief recommendation a certain masculine character, associated with a deal of coarseness and plainness. The Commander-in-Chief, on the contrary, is a very handsome, stylish, "taking" bull, with, as we have said, his weak place or two; but the decree, grounded more on a butcher's than a breeder's estimate of value, was pretty generally disputed by the connoisseurs outside. Prizeman and Friar Bacon were highly commended as at Leicester, and a very good-looking lengthy bull of Major Stapylton's put in for third prize, as, indeed, had he been more made up, he might or should have beaten the other white, whose good luck has more than once brought him a little too forward. In a really bad lot of two-year-old bulls, Charles le Beau, the only one in from Leicester, had a long lead, neither the second nor third being really prize animals, and the judges discreetly withholding any further compliment. On the other hand, the yearling bull was comparatively a strong class, and a still stronger illustration of the difference of opinion which exists amongst Shorthorn judges. Lady Pigot's Rosolio third here, was second at the Royal Leicester and first at Grantham; while Mr. Foljambe's

Knight of the Thistle first at Wetherby, was second to Rosolio at Grantham; and Mr. Fawkes' Lord Belmore merely commended at Leicester, second at Wetherby. Then Mr. Lynn's Grand Sultan, the best of his class at Louth against some of his "betters" here, got now no higher than a commendation; and Captain Oliver's smart Cherry Butterfly, the best yearling at Oundle and the third at Louth, was now never noticed at all. By this, we should lay down the lines for judging a Shorthorn, or according to such a system, or rather the want of a system, it would seem to go very much on the toss-up of a halfpenny. However, the winner here is a light, lengthy, well-shaped animal, with more quality than substance; while the capital coat of Lord Belmore must have had a deal to do with getting him so forward, as it served to cover more than one weak place. Rosolio is now as well known as his trusty squire John Ward himself; but a very good class was made out by some fresh entries nearer home, including a couple of terribly high-bred ones from Scaleby Castle.

It will be remembered that a deal of discussion took place at Leicester as to which was really the better of Mr. Foljambe's two bull calves, then placed first and second; and it would have been interesting enough to have seen them out together once more. But in the exercise of some very neat diplomacy the Royal first will not be brought out again this season; and so the second best was left to do battle at Wetherby. Such as upheld his merits at Leicester would now seem to have no cause to qualify their admiration, for Knight of the Crescent not only took the first prize of his class, but the cup as the best of all the bulls, as his half-brother Robin did at the same age at Doncaster. We are inclined to doubt the policy of thus distinguishing very young animals, but this is certainly a capital calf, long, deep, and square, of a good whole colour, with a handsome roundish head, and very nice and kindly in his quality; so that it was thought he would have even beaten Commander-in-Chief "on their merits." Mr. Foljambe was also third with another son of the Knight of the Garter, on a heavy but plain scale, and with bad drooping quarters. The couple were separated by a particularly nice young bull of Mr. Cattley's, that was immediately put in price, and Mr. Smith, of Wetherby, commended for a white, with only half a pedigree, by second Duke of Wharfedale, out of nobody knows what.

Of that "sweetest, straightest, and altogether most charming cow" Lady Fragrant, how shall we say more than we have said? save that she was, of course, the best of her class, and the winner of the cup as the best of all the cows and heifers. It was stated that a hundred to one was actually laid on Mr. Booth's bull, but still greater odds might have been given over his cow. Her second at Leicester, Jolly Queen, was not at Wetherby, but Queen of Rosales, the third at Leicester, and that might have been second, was now passed by, in favour of the "gandy-vulgar" Miss Farewell. We can but repeat our own words, as we register perhaps the most faulty decision of the day. Putting Lady Fragrant out of any question, the judging of this class was saved by the placing of the second cow, a white, from Osberton, merely commended at Leicester, but worthy of more notice. Cherry Blossom begins with a nice cow's head and a fine forehead, has well sprung ribs, a capital back, and great breadth over

her loins; but she is growing a little gaudy about her tail, and is rather hard in her touch—a point which must go greatly against her, with those who judge with their eyes shut. A good deal was thought of Sir Walter Trevelyan's Princess of Yetholm, the best cow at the recent Northumberland meeting, but she did not fulfil her promise, and was neither fancied inside nor outside the ring; while Mr. Dugdale's entry had more merit, and would be selected amongst the three or four really good cows in an otherwise moderate class. There were only four two-year-old heifers, over which the three premiums were reluctantly awarded, as Mr. Dugdale's Cherry was the only one with any pretensions to a place on a prize-list; but the yearling heifers, like the yearling bulls, were numerous enough and good enough to furnish some further example of "the eccentric movement" by which Short-horn judging seems to be regulated. At Leicester Mr. Howe's Lady Anne was first, Mr. Booth's Patricia second, something else third, and Mr. Booth's Lady Gaiety highly commended. At Wetherby, where the three named also met, Lady Gaiety was first, Patricia second, and Lady Anne third! It is only fair to say that this is the third time in succession since the Royal Show that Lady Gaiety has been preferred by other judges to Patricia; and Lady Gaiety, be it remembered, is own-sister to Lady Fragrant; but it is hard to understand how, with her great growth and fine deep frame, Lady Anne could have been put aside. It is true, as we have previously pointed out, that she shows to some advantage on the score of age; but as long as she was in the class she was at the head of it. We believe that she has never before been beaten; and full of promise as are Mr. Booth's pair, with Lady Gaiety for choice, the allowance for age—always a difficult matter to adjust—was surely made too much of at Wetherby, and such leading points as size and symmetry hardly put at what they are worth. Sir George Wombwell's high commendation was very fairly earned with a pretty red roan, purchased at the late Lord Feversham's sale; and the entry, with Mr. Tennant, Mr. Dugdale, and Lord Londesborough in it, was pretty generally good. In a small class of heifer calves Mr. Foljambe was first again, with a capital straight, stylish roan, with well laid shoulders, and a line of beauty running along her, in very striking contrast to the light mean second, bad before and behind, and with nothing but her hair to recommend her, although Mr. Douglas was supposed to have gone for this one, with much vehemence! There were four dairy cows entered for two prizes, which having been duly awarded, the owner of the commended cow, as also of the second prize, felt it to be his duty to enter the ring and inform the judges that the commended one had beaten the other two whenever they had previously met. And this brought the business to a climax, the Wetherby trio having upset everything they well could, even to the placing of two or three Milk-maids and Dairy-maids.

The Show, be it said, was held in Mr. Gunter's grounds; but this gentleman is very much above exhibiting his Duchesses, although rumour ran riot as to a yearling heifer still to be seen all alive, and just sold for 1,000 gs., to go to America, on the express understanding that she is never to come back again. This rather reminds one of the story of the master's instructions to his man, touching the sale of a favourite horse: "You take him to the fair to-morrow, Will, and mind you don't bring him back again!"

Amongst the horses that entered the ring at Wetherby there was a capital muster of the right sort in many of the classes, even for Yorkshire; and, with dealers from all parts in search of something with form and fashion equal to the bulky dimensions of Daniel Lambert, down to that diminutive bit of humanity, General Tom Thumb,

prices were high, but not so exorbitant as to stop business. The two sets of judges commenced their duties about half-past nine in adjoining rings; but they were not well handicapped, as the cart and coaching bench were very quick in coming to their decisions, while the thorough-bred and hunter trio were the reverse, and the former might have been entrusted with the roadster classes without even then a chance of making a race of it. Among the thoroughbred stallions, nine in number, there were the first and third at Thirsk last year, Angelus and Volturmo; the latter a fashionable-looking horse, with his toes out as if he had been dropped at Almack's, and hocks none of the cleanest, was nowhere here; while the neat, good-topped, short-jointed, hunting-like horse of the class, Grand Master, though nowhere at Thirsk, was placed third here; the long-necked, hollow-backed, dishing King Brian taking the second rosette. Then, the lengthy, good-limbed Windham, with hocks not quite in a line, and the useful Scaramouch, by Touchstone, with the brilliant-coated, over-topped, short, light-armed Laughing Stock, a taker of the Royal Hundred at Newcastle, and who still bent his knee, were no where. The other two were Schloff and Cathedral, the one spoilt by straggling, and weak hind-leg action, and Cathedral with quite enough of him, and quality for anybody, if in better form. Young Ebor, in the coaching stallions, a six-year-old, and never shown before but as a yearling, was a fine lengthy horse, with good ends and short legs; and General Johnson not deficient in appearance or limbs. The roadster stallions were very well represented by a class of eighteen, many of them being well-known, in the ring, and, as is customary with this class of horses, some wearing necklaces, and one a breeching of local prizes printed on brass plates. Fireaway, the first horse, is of good form and great character, and he was picked out for honours at York three years ago, but disqualified by the veterinarian for lameness. The second, Edwin Landseer, a son of Fireaway is a stylish-looking trotter, and a black, like his sire, but not so compactly made, nor with the old one's character. The third, or commended, for his number was posted as a winner, was All-Fours, renowned as a prize-taker and for his neat form and merry-going, white-stockinged legs; indeed, he would have been asked to take a higher place if it had not been for his poor feet, which have been brought into their present form by some British remedy. Among the others was Young Pretender, with a good top and well-set limbs, as well as being a grand mover, who took second honours at Thirsk last year, and who, many thought, ought to have been presented with the first. St. Ives, the second at Driffield to All-Fours, that we noticed last week, was also here, and Captain Barlow's handsome cob Lucifer, together with Bucks, Princes, Liberators, Performers, and Pretenders, as well as other well-known high-stepping names. The hunting brood mares with foal at foot, or, as "the model Secretary" loves to put it, "with foals sucking" but they are not always imbibing like ourselves, were very well represented, the grand topped Lincolnshire lass and prize lady of Leicester, Maid of the Heath, having to make way for three others; one of these being Goahead, that was placed third to her at Leicester, and, which though of smaller dimensions, is more symmetrical. Then Slippers, who, after considerable deliberation and sundry drenchings in the heavy storms that occurred at Thirsk during the holding of the prize-court, was placed first, and Goahead nowhere; but here the tables were reversed, with Goahead second and Slippers nowhere. But of all the old dames there are none like the varmint, rare-made, short-limbed, one-eyed Sally, a prize-taker when the Royal was held at canny Newcastle. There were several other nice ones; but we find, if we enumerate all with good-looks, we should be as long in summing up as the judges were

in getting at their decisions. British Queen, picked out as the queen of beauty from the Leicester roadster brood mares, was here fain to accept of second honours to The Maid of all Work, a mare in her twenty-second year, and whose beauty, if she ever had any, must have left her in the years of hard toil, or become soured by the too common badgering accompanying the not over-paid services of the ill-fated sisterhood. Polly, a deformity, came in for the third rosette, with a model of whose heavy forehead and faulty forelegs the judges ought to be presented by the Society as a memento of their services, and if the designer could add her hammering action, so much the better. Brunswick, a short-quartered leggy chesnut by Angelus, was first in anything but a grand class of two-year-olds, the second being a good-limbed, fine-framed bay by King Caradoc; while the third, Jordan, was of a good form, but of no quality. Then a fair-made filly, with four white legs, and the usual accompanying blaze of white in the face, by Angelus, was first, and Britannia, a Laughing Stock, rather high on the leg, second, a position she also filled at Birmingham; while Mr. Burton's The Star by Cain, from Thirak, was a fine-looking mare. In a well represented class of three-year-old hunting geldings, Don Juan by Angelus, a great quartered chesnut, that drew his hind legs after him as if he were ashamed of them, was placed before The Sultan, a gelding of some form, but light of bone and back at the knee, and who had a knack of bringing his flat feet in rather too close proximity with his shins; and the third, Bullfinch, we considered the best, a deep, compact, short-joint brown, with his hocks well under him. Mr. Stapylton's Solferino was very handsome, though there was not much of him; while Mr. Botterill's General Napier had a good forehead but short quarters, and Mr. Beilby's brown by King Brian had something more pleasing about him than his sire.

The roadster three-year-olds were fairly represented, though not strong in numbers, Dudee being a nice one, but rather long from the knee to the ground; while Rifleman looked like making either a clever hack or light hunter, a rare but excellent combination; and Mr. Gunter's Pioneer and Mr. Davis' roan gelding were the next that attracted our attention. Although only four in number, the three-year-old hunting fillies were anything but a poor lot, the first, Eleanor, being a fine-shaped mare, with good limbs, by Volturmo, and the second, Nelly, by Pioneer; the others, a grey, Sadowa, by Pontifex, of Major Stapylton's, and a chesnut, by Anderby, of Mr. Clarke's, of Thirak. The four years old, seventeen strong, out of an entry of twenty-six, made up a very good class, the chief honours going to Brigadier, who now leaves the nursing and good things of Killerby Hall for active service with the Holderness. But putting him alongside old Wrangler or The Doctor will not improve his looks, as he has somewhat of a coarseness about him, more especially in his hind-quarters, besides a flourish with his off fore-leg, that denotes anything but pace. Then he has feet the size of a fly flapper, which, certainly, may be of use to him in crossing a slushy country, or in case of a swim, should he happen to drop his satchel rump into a bumper in the shape of a dyke. The second horse, Harry by Bondholder, dam by St. Bennett, was far more taking, and we thought more the cut of the Holderness stud, with length, middle, capital ends, and first-rate limbs, as well as being full of quality, and throughout trussed with muscle, but free from lumber, so that we shall look out this nag again, as there is something genuine in him, or we are much mistaken. The third, a bay by Fugleman, could step, but was light about the knee. Mr. Brady Nicholson's The Baron, with length, was of fair form, and Mr. Robson's The General by King Caradoc of good shape;

but Julius by Orpheus, a prize-taker at Bridlington, is an overgrown one that looks higher than he is, a fault that speaks for itself. Amongst the four-year-old hunting fillies there was nothing to brag about, and from the glimpse we had of them Bird of Eve is rather narrow, but Mr. Barton's Gem had some shape; Carnation was wiry, and wearing-looking, and Mr. Darrell's Princess neat and light. Of five-year-old hunters by a thorough-bred horse, up to 14 stone, there were five—Lady Derwent, Emperor, Borderer, Mr. Brady Nicholson's Beeswing, and Mr. Cattle's Royal Oak. The tug of war was with the three former, the first prize going to Lady Derwent, who as some think is scarcely up to the weight. She cantered prettily, but is anything but a strong goer; while the second was the sour-eyed Emperor, second to her in the all-aged cup at Driffield, and though compact and truly built, he does not bring his hind legs well under him in his gallop. The third was the grand hunting-like weight-carrier Borderer, who would have stood more chance in sticky ground than on that nearly equal to the turnpike-road. In the twelve-stone class, also by a thorough-bred horse, there were twelve competitors. Highborn, a nice-looking horse, but light below knee and a trifle leggy, goes rather high and round for a hunter, as well as carrying his neck very stiff and ewed when set going. The second, Errand Boy by Fugleman, dam by Muley Moloch, is a very handsome blood-like horse, of beautiful symmetry and capital stylish action, bringing his hind legs under him in his canter in elegant style, that would make him, with his looks, more valuable as a park hack than a light hunter. The Princess is a nicely-formed mare, barring a slight thickness in the shoulder, but with manners for which Humberton is noted. Peach, a handsome chesnut mare of Mr. Wright's, of Nottingham, would neither walk nor trot, or do anything but bound about like a grasshopper, making it anything but pleasant diversion for the gentleman up, if we are at all acquainted with physiognomy. Tallyho, a chesnut of Mr. C. Harrison's, has something grand in his looks; but, as he cannot move, he did no more than he did at Driffield—come in at one end and go out at the other. Mr. Brady Nicholson has a horse in Bacchus, that when on he never need fear soiling his boots or charging anything short of a windmill, as he is a capital fencer; and Mr. Fawcus, of Darlington, had a very hunting-like horse in the Baron, by Orphod, dam by Fitzambo. In the six-year-old hunters, Sprig of Nobility put in an appearance; but Master of Arts, who stood next on the list, shirked it, as his coat begins to shine, after the pains we have taken with him, and the dressings we have given him to get him into tip-top show condition; and a judge who once gave him honours, not only abhors the very name, but won't stop in a yard with the chesnut. Mountain Dew was here too, and, after a heavy thunder-storm, which made horses, judges, and lookers-on skeddadle for shelter, and the turf much better going, the black galloped in his old form, that gained him the first rosette at Manchester. He steps very high in his trot, and a little so in his gallop; but he has a sweeping stride, and goes and feels like a hunter under you, bringing his hind legs well under him. This has always been our opinion of him, which was confirmed by Mr. Brady Nicholson, a good horseman, who rode him at Manchester, as well as judged him; then Captain Skipworth, who rode and judged him there also and again at Wetherby, is no novice in crossing a country, and still sticks to him in preference to the wooden ones that used to sweep the decks. Tyreconnel, the second Islingtonian to Mountain Dew, came to try his luck again before his shoulders bring him to grief; and Mr. Jacob Smith rode in on a good-looking chesnut, who could go, and who was one of the half-dozen picked ones; but

while we were having a glance at something else, Tranby had vanished. Cavendish, a horse by Oxford, that struck us at a first glimpse as more like harness, has a thick neck and a coarseness throughout, as well as being light of bone, but a good mover. Among the others were several good-shaped ones; and Iris, who beat Lady Derwent at Peterborough, as *he* ought to have done, or *she*; for, if our eyes did not deceive us, *he* was a horse, and if the name do not, *she* must be a mare; but he, she, or it, Iris is a clipper of surprising beauty. He is a model of a hunter, for symmetry and power, with quality throughout; besides this, he is a strong goer, bringing his hind legs under with such powerful but even strokes, as he goes sailing away, with his head pointed, as true as the needle to the north. We have seldom seen a horse as a hunter that we have been more pleased with, and we took him for sixteen hands only, so beautifully is he made; but Pye, the Captain's stud groom, who has hands, and showed his horse well and quietly, assured us that Iris is within an ace of sixteen-two, and one of the best, which is saying a good deal, that Mr. Anstruther Thomson ever crossed. He is a bay with a wall eye, which had a most comical appearance, when with quite an old lady's night cap in the shape of rosettes pinned to that side of the head he paraded the ring full of honours, for he beat them all, and carried off the president's silver cup, for the best hunter exhibited in any of the classes, which included Lady Derwent, who in action for a hunter or power was but a neat hack by the side of him, Brigadier, Highthorn, Eleanor, Don Juan and other winners. In the hackneys up to fourteen stone there were several very nice nags, old Crafty playing second fiddle to the Malton bay, while Thorngumbald's Pride, the Birmingham lass, was nowhere. Garibaldi, who was first last year at Thirsk, where we sang his praises, was again at the head of the poll in hacks up to twelve stone; but The Duchess of Athol we did not see out, nor any of this class. Captain Barlow's clever little hack Piccadilly, with plenty of bone, who it will be remembered was second to Mr. Millward's The Steward, at Thirsk last year, in the ponies above twelve hands and under fourteen hands, has greatly improved, and now heads the list.

In the agricultural stallions, Lincolnshire is a grand and well-made horse, of size, but with not the best of heads, which, with a small eye and only one ear, is not improved, the other ear being injured by a twitch, and withered; but in other respects, there is not much to find fault in him. The second, Young Sampson, is a useful, active, good-limbed horse, who took the third ribands at Leicester. Mr. Bell's Emperor was a good-looking sample of the Clydesdale breed, but rather light in the middle; and Mr. T. Child's Royal, somewhat of a heavy roadster of the Norfolk type. The well-known Jet, first at Leicester, carried all before her here, Bonny the second being a deep, cobby, active, short-legged mare, of good stamp; and Mr. Aitkin's Rose, a good-framed one on short legs, but with a big head. In the two-year-old geldings and fillies there was no entry, and in the three-year-olds but three came into the ring; the first, Topper, being an active, light, calf-kneed stepper, and the second thick and useful. In the pairs of four-year-olds and upwards, Dick and Charley, a handsome light pair of greys, from Myton Hall, beat a heavier, good-looking couple, with more power in Punch and Toby, or as the paper lads at Doncaster station love to pronounce that great individual's name, Poonch and his rival Phoon.

With the exception of the Leicesters the show of sheep was not very imposing, and the three Down or Short-wool men had not much to say over what they saw. There were no Southdowns proper, and amongst the Shropshires there was not a sheep nor even an owner who had taken a prize at Leicester. Lord Wenlock and

Mr. Horton were the chief winners, and the Esrick ewes were a fair useful pen, Mr. Horton's second being, as we believe, the lot disqualified at Leicester. Mr. Peel had as usual all the honours to himself with his Lonks in the mountain or black-faced class; and there was in reality no competition amongst the Cotswolds. Mr. Lynn made a few entries under the condition of "other long-wools," but Mr. King Tombs took all the prizes with his famous 200 gs. sheep and others in, or put out at Leicester. Although the Lincolns have here the honour of a recognized rank, the entry beyond the prize sheep was not equal to the front offered at the Royal in a more general class. The shearing rams were altogether the best lot, with Mr. Wright first with the sheep, also first at Leicester; Mr. Marshall being now second with the third at Leicester, and Mr. C. Williams' second prize Royal sheep now not noticed. Amongst the old rams Mr. Marshall stood precisely as at the Royal meeting, with the same sheep first and second, the judges only adding one commendation in a class of some numerical strength. Mr. Cartwright's first-prize pen of gimmers at Leicester took nothing at Wetherby, Mr. Wright's third prize at the Royal being now put over them as first, while Mr. Lister's second-best here were not at Leicester. We can only repeat that the Lincolns are very deservedly making way on the show-ground for a combination of good wool and good mutton; but the proof at Wetherby, so far as the prize-list be concerned, is little better than negative, and, as with the Shorthorns, a man must study the two returns very carefully if he should not feel strong enough to judge for himself.

The Leicesters were, as we then said, very good at Leicester; and they were very good at Wetherby, although with Colonel Inge, Mr. Sanday, and Mr. Turner well out of the way, Mr. Borton had, beyond his own county, only Mr. Cresswell and Mr. Marris to beat; and, with one exception, he took all the prizes. His first-prize Shearling was third at Leicester, the second was not at Leicester, and the third sheep was highly commended at Leicester; so that the one award goes to confirm the other. Amongst the old sheep, however, the decision was reversed; the "reserve" of the Royal being now first, and the second Royal again second. The judges of Leicesters, though they spoke well of the general show of the breed, were somewhat chary of their commendations, despite such exhibitors as Mr. Cresswell, Mr. Riley, Mr. Marris, and Mr. Brown bringing their sheep on, many of which had been previously and deservedly noticed.

The competition in the pig classes was pretty generally limited, although the quality of even the big Yorkshire pig is evidently being amended. Amongst the large white boars there were only four entries for three prizes, Messrs. Duckering's best Leicester pig getting no nearer than third, and then only under protest, as he was very lame. The best large white sow—a wonderfully good one—was also first at the Royal meeting; but Mr. Dyson here again interfered with the previous decisions, and the Northorpe sow was consequently only third, instead of second. In the boars of a small breed, Mr. Mangles' white, never noticed at Leicester, took first, and Mr. Eden's Suffolk, then first, was now put second; and so on. The mixed breeds were very bad, as going for neither one thing nor the other, and the three store pigs, even with Mr. Mangles' first and third, not much better; but in the pigs under twelve months Mr. Eden had a capital boar of the large white breed; and the small boars of the same age made up a very good class. There have been larger shows of pigs in Yorkshire, but never better; and for very visible advancement in the breeding of this kind of stock, Wetherby will offer some very satisfactory proof.



Mainly, as it would seem, for the amusement of two gentlemen appointed to act as judges, a variety of fantastic premiums were offered for implements in the yard, all of which were duly awarded, and all of which will be found duly chronicled in our prize-list. It would be impossible to offer any further commentary on so harmless an occupation.

The Hound Show, as we have long insisted it should be, was this year made a show of itself; but in consequence of the tedious plan of extending the horse-judging into the second day, very few people had time to visit the hounds, and as a speculation the affair could not have paid. Neither were the hounds so good as we have seen them; while the success of the thing was seriously damaged by a bit of official absurdity which went to prevent the judges announcing their awards as they made them. Only imagine the public watching half-a-dozen horse-classes out and in again, without any information as to what was going on! Mr. Parrington, however, if we remember aright, did once attempt something of the same sort with a horse show, under the notion that people would attend at some dinner to hear the awards announced and the speeches made. Let there still be dinners and speeches by all manner of means, and view-halloos and hurrahs and so forth, for those who like this kind of business; but let the world run and read, and then eat its dinner in quiet, assuming that it should so desire to do.

## PRIZE LIST.

### CATTLE.

JUDGES.—J. Douglas, Athelstaneford, Drem.  
C. Howard, Biddenham, Bedford.  
M. Stephenson, Fournstones, Hexham.

### SHORT-HORNS.

Bulls of any age above three years old.—First prize, £20, J. Peel, Clitheroe (Knight of Knowlmore); second of £10, T. C. Booth, Northallerton (Commander-in-Chief); third of £5, H. M. Stapleton, Myton Hall, Yorkshire (Lord Wetherby). Highly commended: J. Lynn, Grantham (Prizeman); F. H. Fawkes, Otley (Friar Bacon).

Bulls above two and not exceeding three years old.—First prize, £20, Lady Pigot, Newmarket (Charles le Beau); second of £10, J. W. Botcherby, Darlington; third of £5, T. D. Jefferson, York (Lord Waterloo).

Bulls above one and not exceeding two years old.—First prize, £20, G. S. Foljambe, Worksop (Knight of the Thistle); second of £10, F. H. Fawkes, Otley (Lord Belmore); third of £5, Lady Pigot, Newmarket (Rosoleo). Highly commended: J. Lynn (Grand Sultan).

Bull calves above five and not exceeding twelve months old.—First prize, £10, and cup value £20 as best of all the bulls, G. S. Foljambe, Worksop (Knight of the Crescent); second of £5, J. Cattley, York (Prince Leopold); third of £2, G. S. Foljambe, Worksop (Knight of the Thistle). Highly commended: A. Dugdale, Burnley (Duke of Brunswick). Commended: J. Smith, Wetherby (Yorkshire Hero).

Cows of any age above three years old, in calf or milk.—First prize, £20, and cup value £20 as best of all the cows and heifers, T. C. Booth, Northallerton (Lady Fragrant); second of £10, G. S. Foljambe, Worksop (Cherry Blossom); third of £5, R. Tennant, Leeds (Miss Farewell). Highly commended: Lady Pigot, Newmarket (Queen of Rosalea); A. Dugdale, Burnley (Lady Fortunate).

Heifers not exceeding three years old, in calf or milk.—First prize, £15, A. Dugdale, Burnley (Kent Cherry 2nd); second of £7, J. Smith, Tadcaster (Silverspring 3rd); third of £3, R. Houfe, Wetherby.

Heifers not exceeding two years old.—First prize, £15, T. C. Booth, Northallerton (Lady Gaiety); second of £5, T. C. Booth (Patricia); third of £3, J. How, Huntington (Lady Anne). Highly commended: Sir G. O. Wombwell, Bart., Easingwold (Georgina); R. Tennant, Leeds (Rose of York).

Heifers calves above five and not exceeding twelve months old.—First prize, £10, G. S. Foljambe, Worksop (Flora); second

of £5, R. J. Hudson, Barley-in-Wharfedale (Achievement); third of £2, A. Dugdale, Burnley (Kirkleavington Rose).

Cattle of any breed.—Cows for dairy purposes.—First prize, £10, R. Brogden, York (Milkmaid); second of £5, J. T. Robinson, Thirsk (Milkmaid). Commended: J. T. Robinson, Thirsk (Dairy-Maid).

### EXTRA STOCK.

First prize, first-class silver medal, C. Wright, Tadcaster (Shorthorn ox); second, second-class medal, Lieut-Colonel Markham, Aberford (Bramin).

### SHEEP.

#### JUDGES.—Longwools—

W. Bartholomew, Waddington Heath, Lincoln.  
G. Garne, Churchill Heath, Chipping Norton.  
R. Woods, Osberton, Worksop.

#### JUDGES.—Shortwools—

H. Fookes, Whitechurch, Blandford.  
E. W. Moore, Coleshill, Highworth.  
C. Randall, Chadbury, Evesham.

### LEICESTERS.

Shearling rams.—First prize, £15, J. Borton, Malton; second of £7, J. Borton; third of £3, J. Borton. Highly commended: J. Borton.

Aged rams.—First prize, £10, J. Borton; second of £5, J. Borton. Highly commended: J. Simpson, Wetherby.

Shearling gimmers.—First prize, £10, J. Borton; second, T. Maris, Ulceby. Highly commended: S. Wiley, York. Commended: E. Riley, Beverley.

### LINCOLNS.

Shearling Lambs.—First prize, £15, R. Wright, Nocton; second of £7, W. F. Marshall, Branston; third of £3, J. W. Richardson, Kirtou Lindsey. Highly commended: R. Wright.

Aged rams.—First prize, £10, W. F. Marshall; second of £5, W. F. Marshall. Highly commended: J. W. Richardson.

Shearling gimmers.—First prize, £10, R. Wright; second of £5, C. Lister, Colely Lodge, Lincoln. Highly commended: T. Cartwright, Danstan Pillar, Lincoln.

### COTSWOLDS OR OTHER LONGWOOLS.

Shearling rams.—First prize, £15, J. K. Tombs, Langford, Lechlade; second of £7, J. K. Tombs; third of £3, J. K. Tombs.

Aged rams.—First prize, £10, J. K. Tombs; second of £5, J. K. Tombs.

Shearling gimmers.—First prize, £10, J. K. Tombs; second of £5, J. K. Tombs.

### SHROPSHIRE DOWNS.

Shearling Rams.—First prize, £15, Lord Wenlock, Bourton, Much Wenlock, Salop; second of £7, T. Horton, Harnage Grange, Shrewsbury; third of £3, T. Horton. Commended: Lord Wenlock, Esrick Park, York.

Aged rams.—First prize, £10, T. Maris, The Chase, Ulceby; second of £5, Lord Wenlock, Bourton. Commended: D. R. Davies, Mere Old Hall, Knutsford.

Gimmers.—First prize, £10, Lord Wenlock, Esrick Park, York; second of £5, T. Horton. Commended: T. Horton.

### MOUNTAIN OR BLACKFACED SHEEP.

Shearling rams.—Prize, £10, J. Peel, Clitheroe.

Aged rams.—Prize, £5, J. Peel.

Ewes.—Prize, £5, J. Peel.

### EXTRA STOCK SHEEP.

First silver medal, J. and E. Tindall, York (Leicester ewes); second silver medal, G. Wright, Malton (Leicester ewes). Highly commended: J. W. Sharp, Bridlington (Leicester ewes), and W. Brown, Holme-on-Spalding Moor (Leicester ewes).

### P I G S .

#### JUDGES.—Large breed—

W. Bartholomew  
G. Garne  
R. Woods.

#### JUDGES.—Small breed—

H. Fookes  
E. W. Moore  
C. Randall.

Boars, large breed.—First prize, £5, J. Dyson, Leeds; se-

cond of £2, G. Chapman, Scarborough; third of £1, R. E. Duckering and Son.

Sows, large breed, in pig or milk.—First prize, £5, P. Eden, Salford; second of £2, J. Dyson, Leeds; third of £1, R. E. Duckering & Son, Kirtton Lindsey.

Boars, small breed.—First prize, £5, G. Mangles, Ripon; second of £2, P. Eden, Salford; third of £1, W. Sagar, Bradford. Commended: R. E. Duckering & Son.

Sows, small breed, in pig or milk.—First prize, £5, P. Eden, Salford; second of £2, C. H. Dawson, Otley; third of £1, R. E. Duckering & Son. Highly commended: J. Dyson, Leeds; W. Sagar, Bradford. Commended: G. Mangles.

Boars, of any breed, not qualified to compete in large or small classes.—First prize, R. E. Duckering & Son; second of £2, W. Sagar; third of £1, P. Eden.

Sows of middle breed, in pig or milk.—First prize, £5, R. E. Duckering & Son; second of £2, E. Harrison, Leeds; third of £1, P. Eden. Commended: R. E. Duckering & Son.

Three store Pigs, of any breed, and of the same litter, from four to nine months old.—First prize, £5, G. Mangles; second of £2, H. Routledge, York; third of £1, G. Mangles.

Boars of large breed, not exceeding 12 months old.—First prize, £3, P. Eden; second of £1, J. Dyson.

Sows of large breed, not exceeding 12 months old.—First prize, £3, R. E. Duckering & Son; second of £1, G. Chapman, Scarborough.

Boars of small breed, not exceeding 12 months old.—First prize, £3, W. Sagar; second of £1, S. Blakey, Otley. Commended: J. Dyson.

Sows of small breed, not exceeding 12 months old.—First prize, £3, W. Sagar; second of £1, J. Dyson. Highly Commended: R. E. Duckering & Son; commended, T. Nicholson, York.

#### EXTRA STOCK.

First-class silver medal, J. Dyson (boar).

#### HORSES.

##### JUDGES.—Riding Horses—

E. M. Burbidge, Thorpe Arnold, Melton Mowbray.  
C. Garfit, Whitegate, Northwich.  
J. Skipworth, Howsham, Brigg.

##### JUDGES.—Coaching and Cart Horses—

J. Outhwaite, Bainesse, Catterick.  
A. Turnbull, Cresswell, Morpeth.  
W. Young, Norwood House, Beverley.

Stallions, thorough-bred, for getting weight-carrying hunters.—First prize, £30, Sir George Cholmley, Bart., Howsham, York (Angela); second of £10, Earl of Harewood, Harewood House, Leeds (King Brian); third of £5, J. R. Dennison, Minsthorpe, Pontefract (Grand Master).

Stallions for getting coach horses.—First prize, £20, T. and J. Reynolds, Carlton, Selby (Young Ebor); second of £5, I. Hairsine, Broomfleet, Brough (General Johnson).

Stallions for getting roadsters.—First prize, £20, P. Triffitt, Home-on-Spalding-Moor, York (Young Fireaway); second of £5, P. Triffitt (Sir Edwin Landseer). Commended: H. R. W. Hart, Dunnington Lodge, York (All Fours).

Stallions for getting agricultural horses.—First prize, £20, M. Strickland, Headley Hall, Tadcaster (Lincolnshire); second of £5, J. Edmondson, Entwistle, Burnley (Young Sampson). Commended: T. Child, Seacroft, Leeds (Royal Oak).

Brood mares for breeding hunters, with foals at foot.—First prize, £15, J. Brown, Wiggonby, Wighton, Cumberland (Sally); second of £5, J. T. Robinson, Leckby Palace, Thirsk (Go-ahead). Commended: G. and C. Lancaster, Morton Grange, Northallerton (Chesnut).

Brood mares, for breeding coach-horses, with foals at foot.—First prize, £10, W. and F. Coulson, Gaterley Farm, Castle Howard, York (Venus).

Brood mares for breeding roadsters, with foals at foot.—First prize, £10, H. R. W. Hart, Dunnington Lodge, York (Maid of All Work); second of £5, F. Cook, Thixendale, York (British Queen). Commended: W. Major, Sledmere (Polly).

Brood mares for breeding agricultural horses, with foals at foot.—First prize, £10, W. Tennant, White House, Barlow, Selby (Jet); second of £5, R. W. Eddison, Headingly Hill, Leeds (Bunny).

Two years old hunting geldings.—First prize, £10, Sir G. Cholmley, Bart., Howsham, York (Brunswick); second of £5, W. and B. Muzeen, South Holme, Slingsby (bay). Commended: T. S. Cundy, Hall Orchards, Wetherby (Jordan).

Two years old hunting fillies.—First prize, £7, Sir George Cholmley, Bart., Howsham, York (Britannia); second of £3, J. W. Gardom, Butterton Park, Newcastle, Staffordshire (Flirt).

Two years old coaching geldings.—First prize, £10, L. Mansfield, Thirkley Barff, Thirsk (bay); second of £5, T. Robinson, Wingate Hill, Tadcaster (brown).

Two years old coaching fillies.—First prize, £7, L. Mansfield, Thirkley Barff, Thirsk (bay); second of £3, J. Donaldson, Great Ayton, Northallerton (Topsy).

Three years old hunting geldings.—First prize, £15, Sir G. Cholmley, Bart., Howsham, York (Don Juan); second of £10, S. A. Hall, Kiveton Park, Sheffield (Sultan); third of £5, Viscountess Downe, Baldersby Park, Thirsk. Commended: R. Botterill, Garton, Driffield (Bullfinch).

Three years old hunting fillies.—First prize, £10, R. Wise, Field House, Sewerby, Bridlington (Eleanor); second of £3, J. Moor, Scalp Park, Selby (Nelly).

Three years old coaching geldings.—First prize, £15, J. Casson, Burgh-by-Sands, Carlisle (Comedian); second of £10, G. W. Appleyard, Angram Hall, Easingwold (brown); third of £5, Haigh and Sons, Bramham College, Tadcaster (Kurnool).

Three years old coaching fillies.—First prize, £10, W. S. Robinson, Thormauby, Easingwold (bay).

Three years old roadster, geldings or fillies.—First prize, £10, R. Nelson, Barton Hill House, York (black brown); second of £3, R. Emmerson, Over Dinsdale, Darlington (Rifleman).

Three years old agricultural geldings or fillies.—First prize, £7, W. Tennant, White House, Barlow, Selby (Topper); second of £3, T. H. Preston, Moreby Hall, York (black).

Pairs of four years old and upwards agricultural geldings or mares, regularly worked up to the time of the show.—First prize, £7, H. M. Stapylton, Myton Hall, Boroughbridge (Dick and Charley); second of £3, Crawshaw and Blakeley, Dewsbury (Punch and Toby).

Four years old hunting geldings.—First prize, £25, J. B. Booth, Killerby, Catterick; and also highly commended for the President's Cup (Brigadier); second of £10, T. Clayhills, Darlington (Harry); third of £5, Wm. Kendall, East Ness, Oswaldkirk (bay).

Four years old hunting fillies.—First prize, £15, J. B. Booth, Killerby, Catterick (Bird of Eve); second of £5, J. W. Clarke, Guisborough (Carnation).

Five years old hunters, geldings or mares, by a thorough-bred horse, up to 13 stones and upwards.—First prize, £25, E. Hornby, Flotmanby, Ganton, and also highly commended for the President's Cup (Lady Derwent); second of £10, W. Stephenson, Bush Hill, Brough (Emperor); third of £5, J. A. Thomson, Brixworth, Northampton (Borderer).

Five years old hunters, geldings or mares, by a thorough-bred horse, and up to 12 stones and upwards.—First prize, £20, L. Hodgson, Highthorn, Easingwold (Highthorn); second of £7, H. Jewison, Raisthorpe (Errand Boy); third of £3, J. Smith, Humburton, Boroughbridge (Princess).

Hunters, six years old and upwards, geldings or mares.—First prize, £25, and the President's Silver Cup, value £25, as the best hunter, gelding, or mare exhibited in any of the classes, J. A. Thompson, Northampton (Iris); second of £10, E. N. Heygate, Buckland, Leominster (Mountain Dew); third of £5, George Steel, Workington (Cavendish).

Gentlemen's hackneys, of any age or sex, up to 14 stones and upwards.—First prize, £10, F. P. Newton, Norton, Malton (bay); second of £5, H. J. Percy, Howsenrigg, Aspatia (Crafty).

Gentlemen's hackneys, of any age or sex, up to 13 stone and upwards.—First prize, £15, H. Milner, Harrogate (Garibaldi); second of £5, H. Roundell, Queen's Head, Otley (Duchess).

Ladies' hackneys, of any age or sex.—First prize, £10, Sir G. Cholmley, Bart., Howsham, York (Belinda); second of £5, G. Whitehead, Riccal Hall, York (Nizza).

Ponies, above 12 and not exceeding 14 hands high.—First prize, £10, F. Barlow, Castle Donington, Derby (Piccadilly); second of £5, J. Backhouse, Weston, Selby (Jessy).

Ponies, not exceeding 12 hands high.—First prize, £10, W. F. Fox, Dewsbury (Pretty Jane); second of £5, Marchioness of Hastings, Castle Donnington, Derby (Bobby).

#### EXTRA STOCK—HORSES.

First-class silver medal, R. W. Eddison, Headingley Hill, Leeds (Brown); second-class silver medal, S. Wimbush, Finchley, London (Young Ellington).

#### CHEESE.

JUDGES (and for butter).—A. Robinson, Upperhead Row, Leeds.

W. Wilson, Coney Street, York.

Cheese, not less than 1 cwt., made since Oct. 1, 1887, the produce of one dairy.—First prize, £5, G. Gibbons, Tunley Farm, near Bath; second of £2, G. Gibbons.

#### BUTTER.

Fresh butter, 8lbs. in single pounds.—First prize, £3, Mrs. Taylor, Harewood, Leeds; second of £2, J. Hatfield, Oswaldkirk, York; third of £1, J. Abbey, Crimble, Knaresborough.

#### WOOL.

JUDGE.—J. Clayton, Ripley.

Five hogg fleeces, long-wool.—First prize, £3, M. Tomlinson, Cowthorpe, Wetherby; second of £2, C. Barroby, Baldersby, Thirsk. Highly commended: C. Wright, Tadcaster.

Five hogg fleeces, short-wool.—First prize, £3, T. Horton, Shrewsbury; second of £2, T. Marris, Ulceby.

#### IMPLEMENTS.

JUDGES.—T. P. Dods, Anick Grange, Hexham.

T. C. Johnson, Chevet, Wakefield.

#### First-class silver medals to:

For waggon for farmers' use, the Beverley Iron and Waggon Company.

Cart, the Beverley Company.

Market cart, Firmin and Co., Retford.

Chaff cutter, for power, Pickaley, Sims, and Co., Leigh, Manchester.

Oat crusher, for power, Ransomes and Sims, Ipswich.

Portable saw bench, Marshall, Sons, and Co., Gainsborough.

Stand of saddlery, M. Cooper, York.

Collection of weighing machines, Mrs. Mason, Alford, Lincolnshire.

Collection of churns, W. Warde, Leeds.

Collection of washing machines, T. Bradford, Manchester and London.

Collection of land tools, H. Hall, Wetherby.

Stand of waterproof covers for stacks, waggons, carts, &c., G. Mudford, Retford.

Stand of iron hurdles, T. Hyde, Sheffield.

Stand of wire work, T. Hyde.

Collection of pulleys and hoists, J. Pickering, Stockton-on-Tees.

Stand of varied descriptions of food for cattle, Matthews and Co., Driffield.

Stand of artificial manures, H. Richardson, York.

#### Also recommended for first-class silver medals:

J. Fowler and Co., Leeds, for steel traction engine.

Beverley Iron Company, for improvements in clod crushers.

H. R. Maraden, Leeds, for stone breaker.

Driffield Cake Company, for samples of cake.

#### Second-class silver medals to:

Fer turnip cutter for cattle, Ransomes and Sims.

For sheep, E. H. Bentall, Maldon.

Oilcake breaker for cattle and sheep, W. N. Nicholson, Newark-on-Trent.

Oat crusher for hand power, Pickaley, Sims, and Co.

Bean splitter, Ransomes and Sims.

Sheep rack for hay and cake, Wm. Smith, Foston, Driffield.

Field gate, T. Hyde.

#### Also recommended for second-class silver medals:

H. Wilks, Bramham, for improvements in pumps for deep wells.

Ashby and Jeffery, Stamford, for improvements in haymaker. Vickers, Snowden, and Morris, Doncaster, for self-expanding horsehoe.

#### HOUNDS.

JUDGES.—Viscount Galway.

Lord Herries.

Mr. J. Parrington (Cleveland).

Mr. D. R. Scrutton (Essex).

Two couples of entered Hounds, dogs, no hound being older than a seven-season hunter.—First prize, £20, Lord Kesteven, Stamford; huntsman, J. West, £5. Second prize, £10, Earl of Yarborough, Ulceby; huntsman, N. Long, £3.

Two couples of entered Hounds, bitches, no hound being older than a seven-season hunter.—First prize, £20, Lord Kesteven; huntsman, J. West, £5. Second prize, £10, Earl of Yarborough; huntsman, N. Long, £3.

Un-entered Hound, dog, pupped since the 1st December, 1866.—First prize, £10, Sir C. Slingsby, Bart., Knaresborough; kennel huntsman, W. Orvis, £5. Second prize, £5, Lord Hawke, Pontefract; huntsman, E. Owen, £2.

Un-entered Hound, bitch, pupped since the 1st December, 1866.—First prize, £10, Sir C. Slingsby; huntsman, W. Orvis, £5. Second prize, £5, Sir C. Slingsby; huntsman, W. Orvis, £2.

Stallion Hound, not less than a three-season hunter, and certified to be the sire of living puppies.—Prize, £10, Earl of Yarborough; huntsman, N. Long, £3.

Brood Bitch, having reared a litter since the 1st December, 1866.—Prize, £10, Earl of Yarborough; huntsman, N. Long, £3.

At the Council Meeting on Thursday it was resolved to hold the Show in 1889 at Beverley.

## AGRICULTURAL MANUAL LABOUR.

Mr. H. FRAMPTON, of Watership, read a paper before the Newbury Farmers' Club. The following are extracts:—"The subject of 'Agricultural Manual Labour' is one of importance, and in the absence of any other paper, I have consented to introduce it; but having had only a short time to prepare it, I must beg you to excuse a hurried and imperfect paper, still I trust by bringing forward some of the principal points, a really good and animated discussion will ensue, so that in the end some lasting good may result. It will be my object to treat this subject as fairly and openly as possible, remembering the golden rule, 'To do unto others as I would they should do unto me,' feeling assured that it is a question of such momentous importance as to require the most careful and candid consideration of all those concerned. Before entering into the general subject of this question, I would pause to say a few words in reply to those would-be philanthropists who appear to delight in making us (the employers of agricultural labour, in short the farmers of England) the 'butt' at which to cast

their darts. We hard-hearted mortals are made to appear, to those who are not acquainted with the real facts, as tyrants; but I say it behoves all who make a charge against others to search and see if they are founding those charges upon a right foundation—upon the truth—and, if not, to pause ere they speak words which cannot be recalled. Mr. Frampton then referred to an account of a testimonial recently presented to Canon Girdlestone, from a number of labouring men, 'in grateful remembrance of his successful efforts to raise their wages.' The assertions made by Canon Girdlestone, that the agricultural labourers were unjustly treated by the farmers, he contended, were without foundation, and that most of those gentlemen who found fault with the employers of agricultural labour were utterly unacquainted with the real condition of the British farmers as to the question of whether they were able to raise the price of wages. He continued:—'I distinctly say that under present circumstances we cannot raise the wages of our labourers to the extent required by these gentle

men; we cannot afford it. Farming is not sufficiently profitable, and if we are made to do so the loss must fall upon the landlords ultimately; it is useless to pay more than we shall ever see again, and the plain unvarnished fact is that the profits derived will not admit of our paying higher wages. I am quite sure and convinced farmers are not adverse to paying higher wages, provided they can make those wages remunerative. I think there is not a right-minded employer of labour but would quite as soon pay his men 20s. per week as 10s., provided they can make themselves worth it; it would be better, as the master would not require so many labourers, consequently have fewer to look after and to find work in wet and bad weather, when you can make scarcely any return for their labour. I am not writing with the idea of keeping down wages; that I do not desire; but under the circumstances I ask, can farmers afford to pay higher wages? I distinctly say they cannot, and ultimately this must become a landlord's question. But we find these sentiments of Canon Girdlestone's shared by others much nearer home. Mr. Frampton then referred to some correspondence that took place early last year in the Reading papers on the "price of bread," in which "Miller" states that farmers "had better try, if possible, to mend the condition of the poor farm labourer, whose wages are regulated most unjustly;" until they do this they will continue to be "the butt" of the benevolent portion of the community. Mr. Frampton then continued:—I emphatically assert it is not and cannot be our wish to keep down the price of labour; we are willing to pay all we can afford if men will make themselves worth it, but I cannot and will not assent to this false assertion of "Miller's" that agricultural labourers' wages have not advanced. I distinctly say they have, and of course they must while others advance in trades, and there has been a gradual and considerable rise for many years. Neither will I believe, till it is more convincingly proved to my satisfaction, that our men are paid so much worse than townsmen; and when we take into consideration their houses, gardens, and perquisites in the shape of firing, beer, and many other things, in short, I know we pay all they are at present worth; and if these interfering gentlemen will not believe it, let them enter into our business—let them turn farmers for a few years, and then let them speak with authority: we will confidently await the verdict, and probably we should then have some farmers with a spark of benevolence in them. From a most careful calculation I made last year I found that my men's earnings amounted to about 13s. or 14s. per week, rain or shine. We in no way object to any improvement that can be made in the condition of our men—far be it from us, but would further any good and practical object having that in view; but we do object to those ill-founded assertions, which are almost beneath our notice. But taking leave of these gentlemen, we will now consider the practical relations between employer and employed. We shall, I think, find many errors in each of our systems, accompanied, as a rule, with faults on the part of both master and man. We all, I conclude, acknowledge that there is but one grand rule by which we should be guided, if we desire a successful issue to our undertakings, viz., that one golden rule given to us by the Master of us all, which I have before quoted—"To do as we should be done unto," and by which our actions with each other should be entirely guided. If it were more deeply implanted in the heart of every master and servant, there would then arise a greater reciprocity of feeling, and that mutual interest for the welfare of each which is so absolutely necessary to make all things go pleasantly and beneficially, and which is, indeed, the first and foremost thing required, in order for both parties to reap the reward; this accomplished, we have a good foundation to build upon. If education can do it by teaching those in ignorance what are the duties required of them towards both their heavenly and earthly Master, then "welcome education." For my own part I am not at all adverse to education, provided it is befitting their station, founded upon religious teaching; for without that I believe any education they may receive will prove disadvantageous to themselves and the country at large. If they are not taught their duty to God, how can we expect them to do their duty to man? If no morality is instilled into them, there will be no real moral principle to guide and counteract those evil tendencies of the flesh, which make a man who lacks this great principle feel that it is no matter what unjust advantage he takes of others. We all know the effect upon children if no moral religious principle is instilled into

them; and what will be the result if the whole country is abandoned in this way? I must, though rather out of place, solemnly protest against the wholesale attempt now being made to secularise everything in this country, and bring old Christian England down almost to the level of a heathen land. In bidding adieu to education, I would merely add, I should like to see all our labourers able to read, write, and sufficiently taught in arithmetic to be able to calculate the money due to them for any work they may have done. In the two former they will find something to fill up spare time, which might be less profitably employed; and a knowledge of the latter will enable them to know how to get their due, and remove any ill-grounded feeling of being cheated from their minds, which at present men are very apt to entertain. I trust also education will make them feel a greater respect and regard, not only for their superiors, but also for themselves and their own character—a greater feeling of decency and morality in their every-day life, in which we often find them sadly lacking. In this district we have three principal systems, namely, day work, piece work, and the hiring system. Day work, so called from the men being paid by the day of from nine to ten hours (less in winter), is the system most carried out with us, because they are available in the generality of cases, but it is one fraught with evils, the greatest in my opinion being that we pay men by the day instead of according to their worth. I call it a degrading system, calculated to reduce the best man to the level of the worst, and to bring them again lower, having a continually degrading effect. As an able-bodied, industrious, trusty, persevering man, with a good head upon his shoulders, able and willing to turn his hand to anything, is only paid the same amount as an idle and slothful labourer who does little or no work. This, I consider, a system the very reverse of the one we want to instil, and one that must have a great tendency to keep down the price of labour, because rendering it of so little worth. We want a system that will cause emulation, a striving each one to do his best, with a knowledge that his efforts will be rewarded. But how is this to be attained? I confess I know not the remedy. Individually I believe nothing can be done except in exceptional cases, and collectively it was a great undertaking. Could any kind of class system be introduced? I am fully aware that the opposition to any great change would be great, but I most sincerely wish some system better than the present might be found. Some, perhaps, will say meet it with piece or task work. But this you cannot entirely do. You may in many cases, but not wholly. There is a good deal of work to which you cannot conveniently apply it, particularly during the winter half of the year; but on the whole, I consider it a more equitable and advantageous system than the former. It has the advantage of enabling the master to apply his labour most profitably to himself, and of giving his men the chance to earn what they can, thereby paying them according to their worth, and rewarding the best. Taken on the whole, when available, I consider it far preferable to the day system. We come now to the hiring system yearly and monthly. In our own immediate district, where we lack cottages, the former is the only system we can with safety rely upon, as far as regards carters, shepherds, boys, and all having charge of stock, because without it, when summer comes, we should often be left in the lurch, as we constantly prove; but it is full of evils, one of them being continual change, an almost complete revolution year after year, which would seldom be thought of were it not for Michaelmas. No sooner do the master and servant get into the knowledge of each other's ways, and the latter to understand the master's methods and his land, than Michaelmas comes and unsettles all again, and generally the same thing occurs year after year. But where we lack cottages there is also the greater evil consequent to lodging six to eight or ten boys and young fellows together, free from all restraint from their parents, and, as the law now is, almost all from their master. You may get the greater proportion of these steady and well-intentioned, but the chances are you will get at least one bad one, and, as we know "that a little leaven leaveneth the whole lump," so we may easily imagine that one bad unprincipled servant amongst them will have the consequent ill effect upon the others; and this I conceive to be one reason why the relations between the employer and his hired servants are so often unsatisfactory. Were it practicable with us, and could we feel assured of being treated fairly, I should prefer the monthly hiring system, month's wages, month's warning; but this will not do; the generality

who have tried it will find the servant generally does it with the intention of taking an unfair advantage when summer comes. Another evil attendant upon the hiring system is, I consider, the way in which we hire; it is a perfect lottery. You go into a fair and hire several servants of whom you had not the slightest previous knowledge, or they of you. How can the generality of cases be expected to turn out well? Certainly you make an application for character, but how vastly you get deceived even in that! And coming to characters I wish it were made incumbent upon all masters to give all their hired servants, whether good or bad, upon leaving, a just and written character which they must produce on seeking another situation. We should then have them more mindful of that inestimable thing, a "good character," and should be enabled to choose those likely to suit, added to which those of bad character would be the sufferers. Some, perhaps, will raise the objection that these would not produce their written characters; if not, we could speedily guess the meaning of it. Having entered thus far into this question of labour and its faults, let us consider what are likely to be the remedies. First and foremost on the part of the landlords, I think it is absolutely necessary that they should provide a sufficient number of good cottages, on or in close proximity to each farm for the labourers working on it, to be let with the farm. This must, I believe, be the first step. The men would then be near their work instead of having to walk a mile or two every night and morning (one of mine formerly walked seven miles every day to and from his work), and would also feel a greater interest in that farm, being on the spot. The master must endeavour to do justly (kindly and fairly, and yet firmly) to all, showing no unjust favour, willing to pay his men their full value, ever remembering "The labourer is worthy of his hire;" be punctual in the hours of labour (as a failure in this respect is not only unjust to his men but also to his neighbours), and take that interest in the welfare and prosperity of his men, which is his duty; by so doing he will do his part in endeavouring to establish that good feeling and understanding which is so necessary for the welfare of each. Till this is accomplished things will not be as they ought. The men must also on their part endeavour to do their duty, and make it worth their master's while to pay them well, showing a desire to do their best on all occasions, feeling it their duty to consider their master's interest and welfare in all things—their general indifference to the interests of their masters and distrust of them being, I believe, one of their greatest faults. They must also remember that it is written in Scripture, "If a man will not work neither shall he eat." There appears also to be an entire lack of forethought or any provident spirit in them. Could we only get a better state of things accomplished in this respect, we should then remove one of the greatest drawbacks and blights to farming in the present day.

Mr. DARKE opened the discussion by reading certain resolutions adopted at the meeting lately convened at Willis's Rooms, at which Canon Girdlestone was present. He believed such movements as that set on foot by Canon Girdlestone would fail in securing the object in view. He regarded Mr. Frampton's suggestion with reference to the classification of labour as a very practical one; but there would be difficulties to be overcome in carrying out such a system. For instance, some labourers might be disposed to say they would not trouble to do much because they were not placed in the upper class. Piece work had for years been considered most satisfactory in Norfolk. Hiring had a strong hold upon people in this district, because it tended to cheapen labour. The interference on the part of the public with such matters as Canon Girdlestone had taken in hand would, in his (Mr. Darke's) opinion, drive capital from the soil.

Mr. EVERETT followed, and in the course of his remarks characterised Canon Girdlestone's meeting as a most insignificant one. The parties who took part in that meeting were similar to those members of Parliament who session after session brought forward certain measures, and delivered long speeches, dogmatically stating what ought and what could be done, without knowing in the least degree by reliable information whether their proposals could be carried out by practical men. He believed it was in the power of the agricultural body

to say the annual hiring fair should not be held. Other points in the Paper were also alluded to by Mr. Everett.

The CHAIRMAN also made some practical remarks upon the various questions introduced. With regard to hiring fairs, he conceived that the poor people who frequented them should be considered. Those fairs afforded them an opportunity of meeting together and exchanging friendly words, as they would not otherwise be able to do. There was no reason why such fairs should be abolished because they were abused. If they acted on such grounds they might apply the rule to higher things, and put an end to race meetings, and so forth.

Mr. S. WENTWORTH said that one of the remarks made at the meeting in Willis's Rooms was that they were badly fed. He did not think such was the case, and that their condition would bear very favourable comparison with the state of mechanics and artisans in towns. He felt that as a rule agricultural labourers were better fed, better clothed, and better housed than many mechanics. They certainly had not heard of such distress among the agricultural labourers as had prevailed in the east end of London and other parts of the country. He also believed that there was a better feeling existing between the farmer and the labourer than between the manufacturer and the artisan. Though obliged to hire several servants yearly he should be glad to see the system entirely done away with. If they could go to a register office for their servants they would be able to satisfy themselves much more fully than at present as to the characters of the persons they were taking into their service. If labourers were more provident, and did not come so much upon the poor rates as at present, farmers would be in a position to give more wages than at present. It would be a great advantage if they could induce their labourers to invest what they could in some friendly society, instead of spending their money in the beer-house. He felt confident that anything in the shape of trades' unions in the agricultural districts would be the greatest curse possible to the labourers. He had no fear of that movement extending to the agricultural labourers.

The Rev. C. W. EVERETT considered the remarks made at that meeting showed most clearly that the farmers really did take an interest in their labourers, and if those persons who endeavoured to excite heartburnings and jealousies would inquire more carefully into the things they spoke of, they would find there had been much misunderstanding on the subject.

Several members expressed an opinion that Mr. Frampton had understated the amount of wages paid to agricultural labourers. One gentleman said that in nine cases out of ten in this neighbourhood, agricultural labourers were paid 15s. per week. Another farmer said he had given from 19s. 4d. to 19s. 10d. per week. Mr. James Palmer and Mr. J. G. Wentworth also expressed their views on the subject, after which a vote of thanks was presented to Mr. Frampton, who returned thanks and replied to some of the observations made. The whole of the speakers concurred in complimenting Mr. Frampton upon the able paper he had written, and each expressed their personal thanks for the trouble he had taken in bringing the subject under the notice of the Club.

## TOP-DRESSING SEED LANDS WITH LONG MANURE.

SIR,—This plan of top-dressing grazed seed lands at this season of the year is very much adopted on the thin health-lands of Lincolnshire, as a preparation for wheat. In a dry season, like this, the manure in a few days seems to have become straw in appearance again. If any practical chemist will explain how this mode can benefit either the manure or the land, he will enlighten myself, and, I dare say, many other farmers. The old notion of top-dressing was invariably attended with the idea of the manure being well rotten before being laid on the land. The question is, does this exposure to the sun's rays exhale the goodness of the manure?

Yours,  
August 6th, 1868.

T. B.

## THE FARMER'S FRIENDS AND FOES.

Rooks, congregating as they do in large numbers, and feeding heartily, must exert a very decided influence for good or evil on the labours of the agriculturist; it is, therefore, a question of considerable importance to determine whether these birds are friends, or, as some assert, the farmer's greatest plagues. There can be no doubt that rooks will pilfer newly-set potatoes, will consume the freshly-sown corn, and that they sometimes indulge in the eggs or young of pheasants, partridges, and fowls; but that the balance is decidedly in their favour we consider a fact beyond dispute.

Mr. St. John has very fairly contrasted the amount of good and evil done by the rook: "This well-known bird is common in all this district (Gordonstown), shifting its quarters at different seasons in search of food; and immense must be the supply to feed the tens of thousands which are sometimes seen together. Their usual habits are known to most people; but it is an often-discussed question whether the rook is hurtful or advantageous to the agriculturist. With regard to the mischief done by the rook, the greatest destruction of grain made by it is just as the corn ripens, and before it is cut; where the grain is lodged, and at the edges of the fields, it consumes a considerable quantity, and destroys more. It also attacks the potatoes, digging up those roots which are the least covered with earth. In severe weather and snow it attacks the turnips, and its powerful bill enables it to break easily into the root. It is mischievous also if allowed to attack the stackyard, spoiling the stacks by pulling out the straws to get at the grain. The rook is fond of eggs, too; and in some rookeries egg-hunting becomes their common habit, when, from their great numbers, they scarcely allow a pheasant or a partridge to hatch a brood. This bird is also fond of cherries, strawberries, &c. To counterbalance this long list of evil, for many months of the year the rook lives wholly on grubs, caterpillars, &c.; in this way doing an amount of service to the farmer which is quite incalculable—destroying his greatest and most insidious enemy. In districts where rooks have been completely expelled, this has been seen by whole crops of wheat and clover being destroyed by the wireworm and other enemies which can only be effectually attacked by birds. When we consider the short time during which rooks feed on grain, and the far longer season during which they live wholly on grubs and such like food, it will be believed by impartial lookers-on that the rook may be set down rather as the farmer's friend than his enemy. On close observation, when the rook appears to be following the harrows for the purpose of feeding on the newly-sown wheat, it will be found that it is picking up a great quantity of large white grubs, leaving the grain untouched. Amongst its misdemeanours I forgot to mention one—namely, that in severe weather\* it often digs up the young wheat just as it begins to sprout above the ground. Where rooks or any other birds increase to an inordinate extent, no doubt they ought to be kept down by destroying part of their eggs or young. When the farmer is much annoyed by their attacks on any particular field, a few shots at them soon drives them elsewhere. But very bad would be the effect of entirely banishing them from any district."†

Although rooks do occasional damage, they are often the means of preserving whole crops. The caterpillars of the turnip saw-fly—popularly called "niggers" in some counties—not unfrequently destroy the entire crop of swedes. Mr. Marshall states that on one occasion, when these pests were busy in the neighbourhood, a large piece of turnips lying in an

open field had escaped in a remarkable manner. It lay near a rookery, and was a general rendezvous for these birds.\*

Probably no farm pests more thoroughly deserve the name than the numerous species of the larvæ (wireworms) of the click beetles (*Elaterida*). In the farmer's zoology almost every vermiform creeping thing is a wireworm; but the real wireworms are the larvæ of the afore-mentioned family of beetles:

Now let us hear the opinion of Mr. Curtis, a writer who, from long practical acquaintance with the subject of injurious insects, must be considered a very high authority: "Amongst the birds, that which stands first and foremost in the ranks is the rook. Wary as he is on most occasions, he follows the plough fearlessly, to feed upon the wireworms and other insects, and here his services are most invaluable; for if you dig up the wireworms and other insects, and lay them upon the earth, they will often burrow down and disappear in a few seconds. Many, therefore, of the feathered race have little chance of catching them in the ploughed field; but the form of the bill, combined with the strength and assiduity of the rook, is well adapted for detecting them in their hiding-places. To pick them from the growing crops is likewise the occupation of the rook, when we see him gravely surveying a turnip or corn crop, and with astonishing sagacity selecting those plants only which have a few yellow leaves outside—the sure indication of the presence of the wireworm and other insects."

A gentleman in Norfolk, who well understands the subject, says: "The rooks carry the first tidings of the presence of this formidable enemy by hovering over a field in flocks, and actually pulling up the turnips by the roots to search for them; and I cannot but believe that this sagacity directs them to the infested plants, which are distinguished by their drooping leaves and dark unhealthy aspect."

Again, Mr. Clitheroe thus writes: "In the neighbourhood of my native place, in the county of York, is a rookery belonging to W. Vavasour, Esq., of Weston, in Wharfedale, in which it is estimated that there are 10,000 rooks; that 1lb. of food a week is a very moderate allowance for each bird, and that nine-tenths of their food consists of worms, insects, and their larvæ; for although they do considerable damage to the fields for a few weeks in seed-time and a few weeks in harvest, particularly in backward seasons, yet a very large proportion of their food, even at these seasons, consists of insects and worms, which (if we except a few acorns and walnuts in autumn) compose at all other times the whole of their subsistence. Here then, if my data be correct, there is the enormous quantity of 468,000lbs., or 209 tons of worms, insects, and their larvæ destroyed by the rooks of a single rookery in one year. By everyone who knows how very destructive to vegetation are the larvæ of the tribes of insects, as well as worms, fed upon by rooks, some slight idea may be formed of the devastation which rooks are the means of preventing."

The following is Mr. Groom Napier's list of food found in rooks' crops throughout the year:

January, February, seeds, worms, grubs, mice.  
March, worms, grubs, larvæ, grain.  
April, grubs, grain, seeds, worms.  
May, young birds, mice, insects.  
June, July, insects, young birds, mice.  
August, September, insects, mice, slugs.  
October, November, carrion, worms, mollusca.  
December, carrion, worms, grubs.

That the rook is by no means the farmer's enemy is a lesson our friends in some of the colonies are learning, for live rooks have been imported into New Zealand and Australia, at (we believe) 15s. a pair. Several other boys, also are there in request, which in this country are commonly persecuted with nets, traps, poison, and guns.—*Quarterly Review*.

\* Curtis' "Farm Insects," p. 63.

† "Nat. Hist. and Sport in Moray," p. 62.

## CHEAP WATER-FILTERS FOR FARM USE.

Of the growing necessity of filtering water for cattle little requires to be said, and as we progress in our acquaintance with the microscopic world, animal and vegetable, less and less will be needed to turn the attention of the agricultural public to the importance of the subject. In this paper, however, we do not propose going into the physiological question, the construction of cheap filters and the filtration of water for cattle being the topic for discussion.

As in the parallel case of filtering water for towns, two kinds of filters are required—the one a fixture under ground for filtering water into wells and reservoirs, and the other for filtering the water when drawn from such wells, &c., into water-troughs for immediate use. In some cases the former only may be required, in others the latter, and in not a few both; but even when both are required, as in the warm weather of summer, their expense need not put those who require them very much about, if economical means are properly attended to.

The several methods of filtering now in use give rise to a corresponding difference in the construction of the filter; of these three are cheap, and adapted for farm purposes. In the first the water enters upon the top of the filtering medium, passes down through it by gravitation, and is discharged below. In the second the water enters below, rises up through the filtering medium, and passes off from the surface. In the third the water enters at one side of the filtering medium and passes out at the other.

In each of these three kinds of filters there are numerous natural and artificial examples in operation, whose principles of construction and action require to be examined before it can finally be determined what is best to be done in the digging of the well or reservoir, in the conveyance of the water, or in its filtration into the well for future supply or into watering troughs for immediate use.

Where rain water has to be collected into deep wells (surface ponds and stagnant rivers being out of date), numerous examples will be found where such water may be filtered through beds of sand in the subsoil, or be found ready filtered in such beds, if the well is dug in the proper place and to a sufficient depth. We ourselves, in the course of our own individual experience, have met with several examples of this kind on the Oxford and London clays, and also on the Wealden clays of Kent and Surrey, where beds of drifted sand are common; and doubtless many similar instances will be found in other localities. Indeed, most of our spring wells and pumps are familiar examples of this kind of filtration.

These natural reservoirs in the subsoil are generally large basins, which had originally been scooped out in the clay, chiefly by oceanic action. By a similar cause sand and gravel have been drifted, into them at a subsequent period. Over the sand and gravel the subsoil and staple at a still later period have been drifted often in varied strata. Through this upper drift the rain-water percolates, or is filtered into the basin below, where it can be pumped up for the use of cattle directly into watering troughs without any further need of filtering. We have seen an ample supply of water obtained all the year round from a pump-well only about twenty feet deep. In other examples three and four times this depth had to be sunk before water was found. But the expense of boring—an operation which should always precede the sinking of the well—is not great, so that it is easy to determine the actual depth, and into the hole an Abyssinian pump may be sunk.

In some cases, pump-wells of this kind go dry in the summer-time, when they are most needed. In the winter-time we have seen an ample supply of water for the home-stead obtained from a pump; but for a month or two in dry summers it was of no use to the cattle in the pastures immediately adjoining, which were watered by ponds directly over the gravel bed below. How far the bottom supply could have been augmented by boring and allowing a greater surface-supply into the basin below, is a question which we cannot answer, as nothing of the kind was tried. It is only where there is a great thickness of a retentive clay subsoil that the

sinking of water in such cases would be necessary; and, even then, the more advisable course would be to collect the rain-water and filter it directly into a deep well dug in such a soil; for if such a well is dug at the intersection or point where four fields meet, it would supply each or all of them with water.

It follows from the last paragraph, that a dry summer is the best time for boring in search of natural wells of water in the subsoil. The same rule holds good in order to find a continuous flow of spring-water passing from a higher to a lower level by gravitation. Where a series of gravel beds are drifted in basins scooped out in the clay—at different levels—there is sometimes a communication between the higher and lower by means of a thin stratum of gravel or sand through which the water is filtered. Where the flow is continuous all the year round, tapping will procure a regular supply of spring-water; and when the flow is not continuous, it may be drained into a deep artificial well in the winter and spring months, when it does flow to supply the dry season of summer and autumn. In some cases the flow of water from the higher subsoil basin to the lower is so near the surface as to be indicated by the growth of rushes. But into details of this kind we need not go, as in practice they generally speak for themselves in most localities, by the nature of the ground.

When several grass-fields adjoin each other, one well and filter may be made to serve the whole. In some cases one well and filter may serve the whole of the farm, fields at a distance being supplied by means of pipes. Should the well be at a lower level, a force-pump may be required; but if the distant fields are at a lower level than the well, such would be unnecessary. In these latter cases the water may even be drawn from the well on the principle of a syphon, so that by turning a cock the watering trough may be filled. When the farm is wholly dependent upon rain-water, the well must necessarily be on a lower level than the collecting grounds; and between the two levels provision requires to be made for the filtration of the surface-water thus collected by gravitation, which will further add to the depth of the well below the higher grounds. Practically these are simple questions, of easy solution generally speaking; but they require to be closely attended to, as they determine the position of the well and filter.

The size of the well and filter will also be easily determined on the spot. From ponds the amount of evaporation in the summer time is great; but from covered wells it is nil, or next to nil, so that the capacity of the latter would not require to be equal to that of the former. In the winter time the daily influx would be equal to the daily efflux in open weather, and even in the summer time there might be a copious influx at times, so that the difference between the influx and efflux determines the capacity of the well. In the summer time clay soils are thirsty, and drink up all the water that falls upon them; but there are many exceptions, when a large supply could be got from a heavy thunder-storm or continuance of rain in the summer months; and to filter such in the short time allowed, large filters would be required, as a large amount of animal and vegetable matter, in the form of insects, with their ova, seeds, &c., is washed from grasslands on such occasions, unless when the water is filtered into drains through the staple. In short, to filter summer water properly will in many cases be found an expensive process, while the reverse is the case with winter water, for two reasons—first, because the influx is continuous and uniform, comparatively speaking; and second, because the water is nearly free from organic matter in the winter time. The difference, therefore, is very great, in a practical light; for a small filter, in the winter time, would make better work than a large one in the summer time, so that the more economical course would be to build a large underground well, or reservoir, so as to collect and hold sufficient water for summer use, and for such a reservoir a small cheap filter, as subsequently described, is all that would be necessary. To this rule there will, no doubt, be many exceptions, but where farms are wholly dependent upon rain-water and artificial filtration it has much



to commend it to general practice, both on the score of economy and usefulness, when a suitable supply can be obtained free from the organic matter which always superabounds in summer floods.

Filtering material may be either charcoal or sand, or a mixture of the two. The filter may be a long narrow box or drain, built of brick or stone, in Roman cement; or box-tiles might be made for the express purpose, with a moveable lid for each tile. The transverse sectional capacity need not be large to pass a sufficient flow of water to fill a large well in a definite space of time; but as the purity of the water would in some degree depend upon the quantity of filtering material passed through, the length should be considerable. The filtering material should be rammed hard, and the lid forcibly pressed down by a sufficient weight above. The efflux may be upwards from the surface, at a somewhat higher level than the surface of the box, in order not to wash out filtering material. The influx should first be upwards, the better to keep out silt, and to permit washing and cleaning the filtering material in the mouth and throat of the filter by reversing the flow of water at the ingress, and for which provision should be made by shutting off the water from the general body of the filter, and allowing it to flow past the wall altogether during the washing of the ingress portion of it, which may technically be termed the mouth and throat of the filter.

The filter, according to this design, would be composed of three parts, viz., (1), the mouth with the throat; (2), the body; and (3), the vent. The former or ingress portion should be of greater transverse capacity than the body, but it need not be of greater length. The quality of the water will determine the dimensions in both cases. The object of this part of the filter is to remove silt and all matters held in suspension, so as to keep the body or middle portion clean and in successful working order, and so constructed as to be easily washed when it gets foul and does not pass a large enough flow of water. In the majority of cases twice the capacity of the body would perhaps pass the water sufficiently fast. Between the throat and body there should be a sluice for shutting off the water from the latter, and at this sluice there should be an auxiliary mouth for the purpose of admitting water to wash out the foulness which collects in the filtering material that fills the throat. The body and vent of the filter may be of one capacity and piece, the vent or discharge portion being merely a bend upwards for the purpose of more effectually preventing the efflux current washing out the filtering material as already stated. Below the mouth there should be a cesspool for sediment, with a sluice in the bottom for draining off the water during the process of washing the throat. Out of this cesspool stones, gravel, and the like may be kept by a grating, but into minute details of this kind it would be superfluous to go in a general notice.

In examples where cattle are watered from rivers or their tributaries, a small current from such could be diverted into a filter of the above kind, there being a small well at the effluent end capable of holding a sufficiency of water to fill the water-troughs.

When tributaries cease to flow, in the warm weather of summer, as they often do, a large well would be required for this period; and it should be filled in the winter season. In some places bottom-water is abundant at a short distance below such tributaries, either in rock or gravel, from which a plentiful supply, naturally filtered, could be obtained at all times by means of a pump-well. Such examples are numerous; and it is truly humbling to see cattle forced to drink out of the stagnant pools in tributary streams, green and thick, and stinking from decaying animal and vegetable matter, when fine pure water could be got in the middle of the field, under twenty feet below the surface, in a few minutes, by the American tube-well and pump? That the proposition would pay is already proved by experience; for we might quote numbers of cases where pump-wells and draw-wells have now been in use for many years, and where the value put upon them falls little short of the rent of the land. In point of fact, practically speaking, the pastures without them would be worthless to any farmer or grazier.

When the filthy water of rivers has to be stored in a well or reservoir, a second filtration of such water would often be necessary; and the second filter may require to be a moveable one, either at a distance from or adjoining the watering-trough. In this respect the filter and process of filtration

would resemble in principle those now in use by some dairy-men and private families in the Metropolis and other large towns. In those examples which have come under our notice the filter is placed between the cistern filled by the water company and the watering-trough of the dairyman, or a second cistern for holding water for the use of the family, cows, and horses.

In these examples the filters and processes are patent ones, the peculiar filtering material occupying a portion of the water-pipe, so enlarged as to hold it. In principle there is, however, nothing patentable in the mechanism of such a pipe; so that any country carpenter who can make a watering-trough can likewise make a cistern and a filter. Thus, if a water-butt is placed at one end or side of the watering-trough, the filtering material may be placed in the bottom or lower portion of the barrel or butt, so that the filtered water could flow into the watering-trough. All, then, that the cattle-man would have to do in his daily rounds, under such conditions, would be to fill the water-butt, either by a pump or with a bucket from a draw-well. Should a simple filter of this sort not prove sufficient to purify the water, another plan may be adopted by placing a long filtering-box under the watering-trough. In this case the water-butt or cistern may be at one end of the watering-trough, as in the previous example, the vent or discharge-pipe being at the opposite end. The bottom of the watering-trough may be the lid of the body of the filter, which would be similar in principle to the underground one already noticed, only wanting the throat, for which there would be no use, so to speak. The watering-trough may be of the same length as in ordinary cases, so as to permit of an equal number of cattle drinking at the same time; but it may be of less depth and breadth, as the process of filtering from the cistern would keep up a continuous supply of water. The expense of such a filter, therefore, need not be a deadly sun, if common-sense economy is at all attended to in its construction. Instead of being adjoining each other, the cistern-filter and watering-trough may be placed separate from each other, and in some cases the water from rivers may be filtered directly into the watering-trough, at a lower level than the head; but into the great diversity of such details which practical circumstances may suggest we do not enter.

X. Y. Z.

## THE DUBLIN HORSE SHOW.

This show was opened on July 28th, under the auspices of the Royal Dublin Society, which offered £1,000 in prizes. The first prize, £40, for thorough-bred sires, was awarded to Mr. J. M'Mahon, Mountrath, for Roman Bee, by Artillery, out of Queen Bee, by Harkaway; and the second, of £20, to Mr. W. Hatch, Ardee, for Cellarius. In the second class, for sires calculated to get carriage horses, troop horses, or roadsters, Mr. L. M'Court, Dublin, was awarded the first prize of £25; and Mr. W. St. George, Tyrone House, county of Galway, the second prize. For heavy-weight-hunters, Mr. T. Butler, of Ballycarron, was awarded the first prize of £20; and Mr. W. Meredith, of Derryhough, Queen's County, second. In the section for hunters not less than five years old, Mr. D'Arcy, of Athy, received first prize, and Mr. T. Teague, Thomastown, second. The young horses, especially the three-year-olds, were very good, and far superior to the aged hunters. In tracing the pedigrees of many prize winners, it was distinctly evident, from the sire who gained the first prize, down to the mere pony, who so excelled in fencing power, that Birdcatcher blood was predominant. The sires and the young horses formed the prominent characteristics of the show. Some few animals of merit were to be seen among the cobs and ponies. Thirteen hacks and ladies' horses were dismissed without a prize being awarded by the judges. The cart-horse sires shared the same fate, although one of them had won endless trophies in England. The trooper classes did not fill, and may be dispensed with another year. There were several sales effected at remunerative prices. Mr. Hartigan bought Mr. Butler's first-prize weight-carrier for £300, and Mr. Tennant is said to have refused £200 for his light-weight hunter, £400 being his lowest selling price. The horse is certainly a little wonder.

## THE VETERINARIAN VERSUS THE FARMER.

There should be no more useful commentary on the proceedings of an agricultural association than that to be supplied by the veterinary profession. It is precisely the kind of science that should be brought to bear upon a cattle-show. By the exercise of careful observation on such occasions, the Professor should be able to tell us how far the constitutions of animals are injured by their being prepared for exhibition, where the line against excess should be drawn, and how much or how little hereditary disease develops itself in the breeds of stock just at present more particularly encouraged. It is comparatively outside criticism of this order, if ably and boldly advanced, that would carry so much good influence, both with exhibitors and directors; and it is accordingly satisfactory to see in the new number of the *Veterinarian* an article called a "leader" in the table of contents, and "editorial observations" in the body of the magazine, on the country meeting of the Royal Agricultural Society. The paper thus comes with all-sufficient authority, and only the more when we find that the work is conducted by Professor Simonds, assisted by Professor Varnell, both of whom were professionally engaged at Leicester. The premises, as a consequence, could not be better laid, and we turn with some interest to a study of those examinations and deductions which the heads of the College organ enjoyed such peculiar facilities for making; as, indeed, it is not too much to say that from the time the animals were in their places, the Royal Show was at the service of the inspectors. The report—or rather, perhaps, as it should be, at two or three weeks after date, the review—opens promisingly enough: "The meeting has proved in every respect a most successful one."—"The number of persons entering the showyard, and the sums received for admission, place the meeting very high in the scale."—"Bury St. Edmunds is completely eclipsed." And thence we are gradually led on to some consideration of the actual merits of the show: "Subjoined is the award of the stock prizes at the Leicester meeting. Its perusal will show that the several classes were well represented. The competition was strong, and only first-class animals carried away the honours. The show was grand in every division of it. By far the larger number of the horses, cattle, sheep, and pigs, for their purity of breed and beauty of symmetry, were never surpassed, although in some of the classes the entries have been more numerous." And this is all! The prize-list, to be sure, runs to some twenty pages, although, with a little pulling together, it might easily have been included in half as many; and then, of course, we have the old absurd excuse that "Our space will not allow of individual, or even class criticisms, to be made. Indeed, where all was so good, there is little occasion for this being done, and more especially in a journal like ours, which is devoted more immediately to the science of medicine than to the science of agriculture." The latter part of this paragraph is really rich; for what in the world is the use of the science of medicine—of veterinary medicine as here implied—if it be not brought to bear upon the science of agriculture? What is the use of the Royal Agricultural Society paying so much a year to the Veterinary College, and so much in fees and expenses to the veterinary professors, if their science is to be so religiously kept to themselves? As well might Professor Voelcker say that the science of chemistry is not the science of agriculture, and that he must therefore decline

to offer any criticism on individual experiments or class kinds of cultivation. An improved beast is as much an experiment as a new manure for turnips; and before we go too deeply into one or the other, it may be as well to hear from science how far we should be justified in doing so.

The *Veterinarian* has not "the space," nor does it see the "occasion," for offering any such advice; but if the *Veterinarian* can tell the farmer nothing about his stock, it can tell him something about himself. In this very paper, on the country meeting of the Royal Agricultural Society, the editor, with even so little space at his command, can still find room to say that "Farmers themselves, as a body, are woefully behind the rest of the community. The views of many are so contracted that they only look upon an animal out of health as of a plough out of repair." Taken singly, and bearing in mind the quarter from which it emanates, all this can be regarded as little less than impertinence; but it may be as well to ascertain the reasons given for this wholesale attack, made under cover of the Royal Agricultural Society. Farmers, then, are woefully behind everybody else because "much more is needed to give a status to the veterinary-surgeon in rural districts. His means of living are frequently frittered away by the cowlceech and the farrier, and often he receives but little assistance from the resident members of the Society."—Because "these men (the farmers) are the supporters of cowlceeches and farriers, and ever will be until they become better informed;" and so on. We shall be very ready to join issue here, and be quite content to take the Professor's own words in doing so. The veterinary surgeons, then, are as a body woefully behind the rest of the community. The views of many are so contracted that, beyond the horse or the dog, they look upon any other animal out of health as a plough out of repair, and know no more about mending it. Again, we say very emphatically that much more is certainly needed to give a status to the veterinary surgeon in the rural districts. Let us only turn to the history of the recent cattle plague, and gather from this the gross ignorance and hopeless incapability of the veterinary surgeon, not merely in the rural districts, but in our cities and large towns. "The Royal Society," says the *Veterinarian*, with a sort of patronizing encouragement, "has much work before it, and it must keep its shoulder honestly to the wheel. It has laid the foundation of a better education of the farming classes, and year by year it must build thereon." If the Royal Society should keep its shoulder honestly to the wheel, and if it continue to vote grants to the College, we do trust that the Council will try to get something in return, and at least endeavour to lay the foundation of a better education of the veterinary classes. The experience of the last three or four years has shown nothing more shifty or unsatisfactory than the action of the V. S. over the diseases of cattle, and the paper we have under notice comes well in point of such theory and practice. The writer, who appears to have been at Leicester, cannot find space for individual or even class criticisms on the stock, although he can manage to find plenty of room for criticism on, or a rather unwarrantable abuse of, the exhibitors. "Know thyself!" says the old Greek proverb, and ere the *Veterinarian* begins to talk too fast of the farmer being so woefully behind the rest of the world, let him look at home.

Professor Varnell, if we remember aright, is in the

habit of supplying to the *Journal* of the Royal Agricultural Society a brief but pertinent paper on the horses which come under his notice at the annual Show; but is there any companion article on the cattle classes? If not, care should be taken that Professor Simonds do not

languish from any lack of space. Mr. Bowley, as the senior steward of stock, has, we are glad to hear, determined to dispense with any wretched cobbling, and to prepare the Report himself; and to his attention we commend "the science of medicine."

## OUR GRASS LANDS.

Is the management of our meadows and pastures keeping pace with the progress of things? Practically speaking, the question is a plain one, meadows and pastures each returning its own significant answer in every province and corner of the kingdom; and, although there are many praiseworthy exceptions to the general rule, the general rule itself, we fear, must be pronounced a negative answer to the question. At all events, there is much room for improvement in this important branch of farming.

Seasons develop their own peculiarities in our natural meadows and pastures, and the present one is no exception to the common rule. It is highly interesting to examine grass lands at any season of the year, as to how the different grasses are being affected by the weather; but about the middle of May it is doubly so, owing to the stage of growth the various plants have attained—more especially in meadows that have been laid out for mowing and yielding hay. To the superficial observation of the mere passer-by, this or that field may appear different from what it does in the eye of the farmer; and there is perhaps no other branch of farming in which farmers themselves see things so differently as they do in their meadows in the month of May, and in which experience confines their knowledge to their own individual farms and neighbourhoods, owing to the normal peculiarities in their geography, geology, and botany. True, all are familiar with the proverb, "It is May that makes the hay," and also with the facts on which this old proverb is founded; but a more extensive knowledge than this old rule involves is needed to examine grass lands at this season with a view to determine whether or no they are keeping pace with the times.

At first sight, the question for solution is no doubt one in physiological botany relative to the kinds of plants growing, their health and constitutional vigour, together with the progress which this or that class of plants have made and are making towards maturity, and how other classes of plants have fallen or are falling behind in the competitive struggle for subsistence. When a litter of young pigs falls to sucking, each laying hold of its own teat, it does not require a very deep acquaintance with natural philosophy to comprehend the propriety of the whole, and how useful it is for a prolific sow to teach her offspring the regularity they so conspicuously preserve, in order to enable her to give each its own fair share of the means of life. The example is homely but familiar, and full of characteristic truth; and, although plants are said to suck old Mother Earth in a somewhat similar manner, yet in the meadow there is no such regularity preserved as in the pigsty, the vegetable family being obviously fighting a pitched battle for the supremacy in the majority of seasons!—a state of things which ought not to be (P).

Fairplay is a golden rule, no less in the vegetable kingdom than in the animal kingdom; and when farmers see weeds and inferior grasses milking old Mother Earth dry, thereby leaving the finer kinds of grasses to starve, other questions than botanical ones introduce themselves for solution. There cannot be two opinions as to the golden rule being equally applicable to both families, the animal and vegetable. The difficulty lies in the education of the latter—the grasses; and as that difficulty disappears in rich meadows, where the finer grasses all grow luxuriantly, to the exclusion of weeds and even the inferior grasses, it affords a key to the solution of the question.

The practical and progressive question hinges upon the normal dietary of different plants. Thus, when the farmer sees weeds growing luxuriantly in his meadow, and the finer grasses every day becoming more and more sickly, and that this state of things is in a greater or less degree peculiar to the season, or to some specific mode of management, he concludes that what would otherwise have been the food of his finer grasses has become the food of weeds—that the land,

under existing circumstances, is adapted for the growth of the latter, but has become inimical to the production of the former; and as this general conclusion is fortified by the facts of the case, so far as observation can determine, the physical data by which such results are produced resolve themselves into secondary questions relative to the nature of the improvements requisite to effect a healthy state of the land in like seasons for the future.

Much diversity of opinion yet exists amongst farmers relative to the conversion of partially-fertile meadow-land into a permanently-healthy state, analogous to rich meadows over which the vicissitudes of seasons have little or no influence beyond the mere weight of crop, some arguing that judicious manuring will make up for all natural deficiencies; others advocating drainage, or the admixture of soils not usually included under manuring; while a third class believe in nothing else but the breaking-up to aration all such lands that are not naturally adapted for lying permanently in grass, without deterioration, beyond what can be supplied by manures in the ordinary way. To enter upon the details of the several plans thus advocated is far beyond the limits of a short paper like this, all that we can do being to turn attention to the several lines of argument, viz., the manurial theory, the admixture of soil theory, and the aration theory.

That manure will cover many faults is a truism which may safely be granted; but those who have annually to pay long bills for artificial manures have long since arrived at the conclusion that before such manures will pay, the land must be in a proper state to receive them; and our practical readers will perceive how seldom this rule applies to a very large area of the grass lands in question, whether they are in meadow or pasture. No doubt in wet seasons artificial manure may be applied in a dry form, and in dry seasons in a liquid state. But such reasoning amounts to nothing more than fireside farming, more especially if the staple and subsoil are both mechanically defective; for if either or both are so, then the solution of the question is not a manurial one, apart from the pounds, shillings, and pence problem at issue.

The proposition of laying clay, sand, gravel, chalk, and the like on some grass lands to give them a permanent richness of fertility, although it has proved very successful in many cases has failed in others, and for obvious reasons—sometimes mechanical, sometimes chemical, but more frequently both. That the practice has much to commend it, is almost too manifest to require acknowledgment; but to lay it down as a general rule is beside the question. It is even more limited in its application than the manurial theory. It will no doubt be said, in reply to the comparative question thus raised, that the admixture of soil theory is only intended as an adjunct to the manurial theory, and doubtless both theories thus conjoined are of more general application. But granting this, they nevertheless fall short of supplying the mechanical requirements of such grass lands.

Such being the shortcomings of the first and second plans, viewed either severally or conjunctly, it naturally brings us to the third line of argument, viz., the proposition of the plough, or rather all the three plans conjoined, for the mere breaking-up of such grass lands to aration would not of itself solve the practical problem at issue. And we need hardly add that the advocacy of this conjunct view of the subject is becoming more and more general as we progress in chemical and mechanical appliances. More practically viewed, the permanent improvement of such grass lands resolves itself into one of profit; and thorough drainage, artificial manures, improved implements, and the application of steam-power to all agricultural purposes are rendering the breaking-up of such grass lands to arable husbandry more profitable than before their introduction.

NEMO.

## THE CLOVER CROP.

There are few questions connected with agricultural practice which give rise to more interesting research than the peculiarity so frequently observed respecting the growth of a second cutting of clover, and its influence upon the succeeding corn crop. The speculations which have been advanced, and the explanations which have from time to time been given, appear to contradict so many well-established opinions, which have generally been accepted as undeniable, that the question still appears shrouded in mysterious doubt. It is held, and we see no reason to deny its accuracy, that any crop grown upon the land, which may be cut and carried away, must of necessity have a tendency to impoverish the soil from which it is produced. It is true, that if such produce be removed to the homestead or fed off, upon other land, the farm remains uninjured; for this process then simply resolves itself into a transfer, from one part of the farm to some other portion, of a bulk of vegetable matter, which being consumed by stock, is partially appropriated by the animals feeding thereon, and the residue again reaches the soil as manure. The peculiarity so frequently noticed in the growth of clover chiefly consists in the act that land from which a second crop of clover has been cut and carted away, is in better condition for the growth of wheat than when the same clover is consumed upon the field on which it is grown. Indeed we may go so far as to say that even when such clover has been allowed to stand for seed, it is not uncommon for the same result to be observable.

This, we readily acknowledge, conflicts sadly with many established rules of agriculture; but these facts are none the less correct on that account. It is placed beyond all doubt, that the removal of a crop of clover—and still more so with a crop of clover-seed—must of necessity withdraw from the land much valuable fertilizing matter; and it follows as a natural consequence that the soil cannot be as rich in fertilizing ingredients as it was prior to its growth. And yet we have the paradox existing in the shape of an improvement in the crop of corn upon that portion which has had the clover taken away, as compared with that part on which the clover was fed on the land; or in other words, a diminished degree of fertility is attended by an increase in the crop of corn.

It is clear that there must be some compensating influence to explain this result. It has been maintained by many that when the land is depastured there is a considerable exposure of the soil to the scorching influence of the sun, and thereby the nature of the soil is said to be drawn out and its quality injured. We have little opportunity of knowing what is really intended by this explanation, and, indeed, it can only be received as exceedingly indefinite. It is easy for any one to understand that manure exposed to the sun may lose some portion of its volatile constituents; but we have no corresponding loss taking place by the action of the sun upon the soil—so far, at least, as any trustworthy researches have hitherto led us to believe.

We must rather seek for an explanation from some other influence more definite in its character, and more capable of accurate proof. In the luxuriant growth of clover we have one of the best illustrations known, in the entire scope of agricultural practice, of a crop gathering nutriment both from the soil and from that which is the common property of all—the atmosphere above it. Its roots penetrate into and through the soil, gathering

therefrom the nutriment the crop requires, moulding it into new forms, and preparing it for being assimilated in the growth of the crop. This vigorous growth below the surface is accompanied by an equally luxuriant development of foliage above, which very powerfully co-operates in promoting the general increase of the crop; the activity of the roots has a fitting counterpart in the vigorous action of the leaves, which abstract from the atmosphere much valuable fertilizing matter; and thus, by the co-operation established, we have an accumulation of a rich mass of vegetation, valuable either as food or as manure, but its growth has been the result of an active development both above and beneath the soil. Any circumstances favourable for promoting vegetable growth would in such a case act favourably; and, on the other hand, any condition unfavourable thereto must tend to diminish the produce.

If we now notice the growth of a crop of clover which is being depastured, we shall observe that many of the conditions of luxuriant growth are wanting; and, as a consequence, we cannot have an equally extensive formation of vegetable matter. The irregular manner in which such clover is eaten not only destroys much valuable food which has been produced, but by the sheep eating into the centre of the plant its further growth is frequently effectually stopped, and thus much of the clover perishes, and leaves the soil exposed and in an unproductive condition. Further than this, the crop has no opportunity of making a bulky growth, the practice being generally to eat it as it is growing, rather than let the crop advance towards maturity, and then be fed off.

It is in the latter stages of growth that the two practices offer the greatest contrast. When a moderate growth has been secured, the one portion may be set aside for feeding, and the other part reserved for mowing; but, from this moment, the one is subjected to a process of a destructive character, and the other is permitted to accumulate, with a constantly increasing force, vegetable matter of the richest character. Instead of the plant being plucked in its point of growth, the development goes on uninterrupted: the soil, instead of being scorched by the rays of the sun, is kept moist by the overshadowing leaves of the clover crop, and thus the growth of the crop is encouraged. The growth, and consequent accumulation of rich vegetable matter, goes on until the period of full-growth has arrived, and then the whole is cut down and removed. In the one case, the growth is interrupted during its most important stages; and, in the other instance, it is encouraged with its fullest luxuriance.

It is perfectly clear that by such a luxuriant growth the demands upon the soil have been very greatly in advance of that removed from the soil by the portion fed upon the land; but we must not lose sight of the fact that the growth above the ground has been proportionate with the growth of the roots in the soil, and that a luxuriant crop of clover leaves such a rich legacy for the succeeding crop in the accumulations of vegetable matter produced by the decay of the clover roots. When the crop has been fed upon the land the growth of the clover root has been impeded, and consequently the land is far from being in equally good condition for the growth of corn. True, we have removed from the land a considerable quantity of valuable fertilizing matter in the clover taken from the field; and yet, by the course of manage-

ment pursued, there remain behind in the soil accumulations of fertilizing matter of a different nature, but most valuable for the succeeding corn crop, which more than compensate for the loss. The advantages appear all on one side, for most remains where most has been removed; but in the one case we have secured an uninterrupted and luxuriant growth, whereas by the process of feeding the clover we have kept its growth impeded, and consumed it in such a manner that the land could not receive those stores of rich nitrogenized matter which the clover extracts from the air and adds to the land.

It must be admitted that there are exceptional cases to the more general rule we have referred to; but those

variations may generally be shown to be traceable to other causes, and not in any way to interfere with the rule. If, for example, the plant is weakly in its character and habit, or has partially failed upon the land, the difference in favour of cutting will be less evident; the closer and more abundant the crop may be, the more fully will the result be in favour of mowing as compared with feeding; and conversely, when the crop gives no evidence of growth, we ought not to look for results of as favourable a character as we should otherwise expect. The secret of the entire difference lies in the fact of an uninterrupted growth being encouraged until the fitting time arrives for its prompt removal.

## THE NEW FARM.

I must—botheration!—but yet I must, despite the depressing effect of this fearful electrical weather, for I have promised that I will write. I really hope that at last the sky has arrived at its bursting period, for there has gathered during the evening right above the house a most matrimonial-looking thunderous cloud, which I think must needs come down about curtain-time. What a thing it would be to be young again! Even at this sultry irritating moment there is a merry noise from the roost of the youngster boys, who have bolted the door against the remonstrance of the only party they fear, their eldest brother, and are throwing nude somersaults about the nursery floor. The hand-maidens are weary, and only feebly expostulatory, for we are going to have a “leetle” dancing party, and they have been hard at preparatory work all day. Oneself is angry, but tied heretofore, so that the juveniles have a fair prospect of being ultimately triumphant. Even as I write, however, there is a consternated close cry of “Eliza! Eliza! Eliza-a-a!” as the shrewd attendant hath turned the light off, and plentifully applied “cold pig.” Pig! that recalls one to the farm again, and the thought of water, too, is suggestive. I have been the main part of this day with a home-made implement tapping weak spots, in anticipation of a Norton’s pump, that I expect to arrive to-morrow. We have repeatedly struck water, but as repeatedly been stumped out. There is

“Water, water everywhere,  
Nor any drop to drink.”

We strike a sandbed, and the mixture chokes the valves. We draw forth the pipe by dint of lever, empty it on its head of a good thick sedimentary gallon, replace it in its hole, and, still most obstinate, it refuses to yield water. The pulling up and down hath made a puddle of the sides, and again suffocating results! Then we get dismayed and despair of gaining our object from this slough. So we strike down a crowbar anew, and come thud thump upon a rock, a soft sandstone layer, through which we drive the bar without much difficulty; and then underneath occurs a bed of marl, which fills the perforations of the pipe; and so we are effectually done, as we have no further length at hand. There is no alternative but to desist, and await the arrival of the genuine article by rail from the Birmingham agents.

Here we left off last night, it being positively too painfully sultry to get on with one’s writing. Hand and arm absolutely stuck to the paper, as our ideas stuck resolutely, too, in the clay pocket of our muddled brains.

But, as the Irish song says,

“Twas of a Wednesday night,  
At two o’clock in the morning,”

when, glad sound, through the open window! there was a

torrent descending. Good-luck now for the embrowned pasture, good-luck for the mildewed swede-leaf, good-luck for the farm *in toto*; for now, at this hour of 9 a.m., a mist—quite a washing-day mist—covers the face of the whole earth; and there will be a luxuriant growth forthwith. With our abundant, sweet straw, there may not, after all, be a dearth of cattle-food, supposing—as there is every present prospect—that we can put in the breadth we intend of hybrid turnips.

There is an excellent plan of quaint old Drury’s for the multiplication of food, the secret of which consists in soaking wheat-straw. I cannot lay hands on his work just now; but, if I remember well, his plan was to cut wheat-straw of a short length, and then put it to soak for some hours in cold water until a thick mucilage be formed. He then boiled it, stirring in a portion of meal. By this means he was enabled to keep a large extra quantity of stock. I must look the volume up, and give his exact words next time.

I have just been called off to inspect a useful new implement which I bought at Leicester, and which, wonderful to relate, satisfies my honest, ruddy-faced old bailiff. It is an ordinary but excellent plough, which, by the simple alteration of three bolts, can in a few moments be converted successively into a potato-raiser, a digging implement, a subsoil plough, a paring plough, and a double mould-board plough.

Having stumbled upon the mention of the Leicester Show, let me thankfully acknowledge what a wonderful opportunity for successful study both of animals and machinery that tented field afforded to the young farmer. From the shilling knife-sharpener and linen-wrapped refrigerative dish-cover to Howard’s monstrous moorland plough and Owen’s cataract-pump, there was something at every step to attract and instruct. The Southdown ewes were lovely as ever, with their quiet grey eye and weighted thigh. The snowy Cotswolds were a picture, yet suggesting to one the involuntary thought that the loss of one such individual must be heavy, and that, considering the precarious life of a sheep, I should prefer meeting my luck with four small representatives of the ovine species to staking so many sovereigns in a single specimen. There were some grand Herefords, amidst others of vulgar quality. There were delicious-looking Devons and a sweet first-prize Alderney heifer, that capered about in her owner’s hand as if triumphantly exhibiting her rosette in gratitude for the indulgence her early youth received at his hand; but after all, for numbers at least, the Shorthorns had the pull of the show. Of the professional critics there were some who considered this the best show upon the whole of such kind ever exhibited; there were others who compared it disadvantageously in

their mind's-eye with the exhibitions of past years; but I must say, in accordance with a very general conclusion of the practical-farmer-tribe, that the fallow period, owing to the cattle-plague, if it have produced no wonders, has heavily accumulated a grand store of the breed. Lady Fragrant, with her immense frame, her very table-land of back, her great udder, and most sweet feminine front, is (deny it who can) the very perfection of a cow. In old time we have seen others more tubular and beef-suggestive, but we have never seen a cow before displaying in so high a degree the characteristics of the milking cow, with fattening promise for the period when the lacteal produce naturally shrinks.

Again, was it not astounding to see Commander-in-Chief (who in his stall showed a head too ox-like and a tail too high) in the exhibition ring draw himself up, and magnificently look around him with an air that reminded one of old Comet's picture, and which at once placed him first amidst a numerous assemblage of superb old bulls? It was the sight of the show to see these veterans pace round—rich roan, red, or white.

We were all glad to find so eminently triumphant the breeding skill of that rare old man who was so hospitable at Warlaby, and we heartily trust that his mantle has descended on his nephews. I must not omit to give his

due meed of praise to the retiring, quiet-mannered youth who had charge of these cattle. A more obliging, civil, unobtrusive lad I never met. His manner in the ring too was a lesson to others. There was not on his part, as on the part of others who repeatedly made the by-standers indignant, the kicking back of a beast's hoof, the jerking-up of his head into some pet position, nor was there the repeated grotesque lugging forth of his charge before the judge's eyes even when his turn for inspection was past, and the claims of other animals were being fairly investigated. He left his animals to exhibit themselves with their natural elegance, and accepted his fate accordingly.

The great number of new names intermixed with the old ones shows how the breeding taste is advancing, even as is an inclination amidst the wealthy for mowing-machine and steam-plough.

My paper having come to an end, I would only use the few last lines to remind the beginner that if he wishes for real satisfactory success in the end, he should climb as far as he can upon other's shoulders to begin with; that is, he should buy only animals of the best of pedigrees and the best of shape, an opportunity which is offered him by the continually advertised sales of famous breeders, who are either overstocked or have fulfilled their term of years.

VIGIL.

## GEOLOGY, BOTANY, AND CHEMISTRY.

At the last quarterly meeting of the Logie and Lecropt Farmers' Club a paper was read by Mr. Henderson, Stirling, on "What Geology, Botany, and Chemistry have done for Agriculture."

MR. HENDERSON said: Whether agriculture is denominated an art, a science, or a profession, there is at least one point on which I think most people will agree in opinion, namely, that in the practice of agriculture, as at present carried on in this country, a knowledge of many of the arts and sciences is advantageous to the agriculturist. I do not know of any other branch of industry, in the prosecution of which the attention requires to be devoted to such a variety—such a multiplicity of subjects as that of the agriculturist's; and I do not know of any one science or art which may not occasionally be useful to him in the exercise of his calling. To become a thorough practical agriculturist requires from an individual a very considerable portion of time to be devoted to the acquirement of the requisite skill, and acquaintance with minute details, in addition to the knowledge of general business. It is, therefore, out of the question that the man who has to earn his bread by the practice of agriculture can be able to devote the period of time necessary to the acquirement of every science and art bearing thereon, so as to become a proficient in each; in fact it would be equivalent to his becoming an adept in all the details embraced in the whole range of arts and sciences known to man. In other branches of industry there are greater facilities for a division and subdivision of labour, both mental and physical—thus enabling individuals to concentrate their energies on one subject, and so to attain to greater proficiency, skill, and expertness, in their particular callings. Although the agriculturist may have a general knowledge of the arts and sciences, I think it is advisable that, in all important matters requiring scientific research, he should have recourse to the professional man, and not depend on deductions which his own acquirements in science may enable him to make, as these cannot be so reliable as those of the man who makes the subject his daily study. In making use of the words geologist, botanist, and chemist, in the following remarks, the terms are meant to apply only to such persons as make the study and practice of the respective sciences the business of their lives—men learned and practical in their own professions, but, it may be, mere theorists and outsiders in so far as agriculture is concerned. For instance, put a purely scientific man to stock and manage one of your farms, give him the best of labourers to carry out his instruc-

tions, but withhold all practical advice and assistance, and the results would probably be more awkward than the first attempts of the ploughman with the hammer of the geologist, the portfolio of the botanist, or the retorts and crucibles of the chemist. Permit me to use the word agriculture, not in the restricted literal meaning, but in the broad sense, as that industry employed in the production of what is embraced in the bold comprehensive saying of "horn, corn, wool, and yarn"—with the substitution of some such word as esculent for the latter. I believe the technical definition of the word agriculturist is, "He who follows agriculture as a science;" and of husbandman, "He who devotes his attention to the tillage of the ground and management of cattle." I am taking the liberty to omit these distinctions, and to include all who employ skill and capital in this branch of industry under the term agriculturist; for it is evident these technical distinctions are not very applicable at the present time, and it is not necessary for our purpose to enter into elaborate details. Keeping these preliminary observations in view, I would now proceed to make a few random remarks on what the science of geology, botany, and chemistry have done for agriculture. The first mentioned is geology. There is some difficulty to discover much direct benefit which this science has yet conferred on agriculture. Our country is beautifully diversified with hill and dale, with ravine and glen and valley, with loch and stream and river, and is bounded by the ceaseless ocean. Geologists inform us it was not always so. I do not think they give a description of the appearance of the world before their fancy began to play upon it, but they tell of upheavals, subsidences, dislocations and fractures of the crust of the earth. They tell how these convulsions, with the combined actions of fire, and frost, and snow, and ice, and springs, and wind, and rain, and running water, and the ocean's tidal wave, have scooped out the bed of the loch from the solid rock, formed the ravine, the glen, the valley, and the course of the river. They tell how these forces are still in operation, slowly but surely crumbling down the rocks; the little rannel from year to year eating deeper and deeper into the mountain's side; the stream still cutting and deepening the ravine, and carrying the debris from the higher to the lower grounds, or into the sea beyond. They give much information about the district in which we reside—how the rich and fertile valley was once a sea bottom; how the stern rocks of the Abbey Craig, Stirling Castle, and Craigforth have withstood many denuding agencies, and still remain, giving beauty

and romance to the district, while other rocks of softer substance have been dislocated, fractured, worn down, and great part carried away, leaving only a portion of sediment, which now forms the rich earse lands stretching so many miles both to the east and west of these rocks. Geology gives information as to the deposit of alluvial soils and moraines, and although, strictly speaking, not altogether a geological question, of peat moss, its growth, and unexplained decay in some instances. But what is more to our purpose, geology gives much valuable information about the existing surface of the earth, and has minutely classified and described the various kinds of rock of which the crust is composed, and furnished maps on which the different formations of rock are delineated. These maps are no doubt subject to much improvement, and it is to be hoped no long time will be allowed to elapse before they are corrected and published in a form in which more minute details will be given. But even as they are, much useful information may be got by a careful perusal of them. By examining one of these geological maps, the agriculturist can ascertain the variety of rock prevailing in any district, and in the majority of cases the geological formation of any estate, or particular farm; and can thereby form a more correct opinion of the quality of the land—the general characteristics of the soil—and the kind of crops it is most suitable for producing. Where alluvial or other deposit exist, the above cannot apply, but in upland districts and on declivities the case is different; there, in general, the soil has been formed from the denudation of the existing description of rock, which may either be in a projecting or subjacent position; if in the latter, the nearer to the surface so much the more correct are the indications to be obtained by geology of the nature of the soil. Soils formed from different geological formations do not naturally produce exactly the same kinds of herbage, or, if of the same order of plants, there is a something different in their component parts—a something which gives a characteristic difference to animals of the same breed which have been reared and fed on the respective pastures, other circumstances, such as climate and exposure, being similar. In sheep stock this difference is most obvious in the wool; and in herds of cattle, such as the West Highland breed, the most marked difference is in the horn. The agriculturist may thus derive much advantage from the study of a geological map when judging of, or selecting land for any particular purpose. Here, we stand on an interesting geological position, being within a few yards of the point where these maps represent no less than three geological formations to meet, the carboniferous to the east and south, the old red sandstone to the west and north, and the spur of the Ochil range jambed into the angle between—the three meeting not far from the bridge. Again, a mile or two to the south, the spur of the Campsie Hills separates the former two, coming into the angle on the south-west in like manner; the lines of junction being covered over by a thick coating of clay, and presenting a plain level surface admirably adapted for the purpose of agriculture. The next subject proposed for consideration is botany. The agriculturist has something or other to do with plants every day, from the one end of the year to the other. Without having some slight knowledge of botany, it is difficult to distinguish a growing stem of oats from that of barley until it approaches the time when the ears are about to shoot out. I do not mean to say that the agriculturist should be so conversant with the science as to be able to give, offhand, the technical name, &c., of every plant he may meet with; but to possess some knowledge of the information the botanist has recorded, is a very useful acquirement. The botanist, after describing the structure and functions of a plant, and the order, &c., to which it belongs, proceeds to inform as to its habits and the uses to which it is, or may be, applied; as also in what latitudes, altitudes, situations, and descriptions of soil it is to be found growing naturally in the greatest perfection, and, likewise, of the effects which may be produced by culture, &c. The science also explains the method of impregnating one plant by another, and thereby producing new and useful varieties, and has contributed valuable practical information regarding the plants which impregnate each other when growing in close proximity. By paying attention to the information imparted by botany, and examining the natural products of the land, the agriculturist has the means within his power of forming a more correct

opinion of any soil and climate of which he has not had practical experience, than he possibly could do without having recourse to the indications to be obtained by this science. This is of great importance to an agricultural settler in a new country, where the vegetable products to be found growing on the land are probably the surest—possibly the only—indications of the quality of the soil and climate which at the time he may be able to obtain. This is a benefit of no mean order to the agricultural settler in a new country, as his success in life will depend greatly on the quality of the land and climate he may select for his future home; but it also applies, although in a less degree, to the removal of an agriculturist from one district to another in our own country. When the stock farmer goes to a distance to inspect a pastoral range, with the view of making arrangements for becoming the occupier, he may or he may not see the stock, or know the number thereof, which it has formerly maintained; but he has the opportunity of examining the herbage (the various grasses, heaths, and other plants), and can thereby form a very correct opinion of the quality and value of the holding. Should he there meet with plants of which he has not had any practical experience, botany is prepared to supply the want, and give all necessary information. Most of the arable land in this country has been so long under cultivation that most part of the indigenous plants are at least temporarily banished or extirpated, and have, or should have, given place to those which the occupier desires to produce; yet, even here botanical indications are not altogether valueless to the agriculturist, when he goes to inspect a piece of land of which he has not had any former experience. I daresay most of you may have found yourselves occasionally taking advantage of botany when inspecting a grass park, and, from the plants you might find growing therein, making some such remarks on the soil as, "It is wet or dry, deep or shallow, stiff or light," &c. Or, if the land was under the plough at the time of inspection, you may have found yourselves examining the hedges, if any, and probably poking about the sides of the fences, to ascertain what natural plants might be growing on the undisturbed strip of land. All of us are aware of the great benefits which agriculture has derived from this science, in the production of new and improved varieties of plants by hybridization, such as in those of the turnip and clover, &c.; and the information the science has contributed in regard to the impregnation of one plant by another has been found to be of great value in the growing of turnip and other seeds. From these, and many other circumstances which could be adduced, I am under the impression that the science of botany has been of valuable service to agriculture. The third and last subject proposed for consideration is chemistry. Chemistry truly is a magical science, and chemists are a set of clever, acute, expert fellows. They see farther into a whinstone than geologists do—they tear it to atoms, and tell of what every particle of it consists. They discourse of, measure, and weigh substances which we neither see nor feel—things not obvious to any of our senses. Seeing that chemistry has performed so much, agriculture has expected much from the science, and the inquiry now is, What has it done? Chemistry has analyzed the various descriptions of rock which geologists have discovered on the surface of the globe, and given an account of the component parts of each variety. The agriculturist thus has the means of judging correctly of the quality of a soil formed from any description of rock—of the fertilizing substances it may contain in abundance, and of what it may be deficient. Chemists also analyze the various descriptions of soils, and have been successful in detecting the presence and ascertaining the quantities of numerous ingredients; and by comparing the analysis of a fertile soil with that of a more sterile, have found out for us an approximation for a proper formula, showing the proportion of each ingredient which a good arable soil should contain. This, no doubt, is a great step in advance, but chemists have not yet been able to satisfy agriculturists that the analyses they furnish are altogether to be relied on, at least in such a degree as to be a sure test of the productive qualities of land. This may arise from the presence of a variety of vegetable matters, and substances which may have been applied to the soil as manures, or otherwise; and thus presenting a greater number of ingredients to be operated upon. Or it may be that some of the substances are in an inert or dormant state, and consequently not



liable to be so easily detected; or possibly there may be some substances present or absent, which the researches of the chemist has not hitherto discovered in any soil. However this may be, I think it is a fact that agriculturists cannot rely wholly on the chemical analyses at present obtainable, in judging of the productive quality of arable land. In respect to the products of the land, agriculture has been much benefited by the information which chemistry has supplied. It surely is of much importance to the agriculturist to have the means of ascertaining correctly what substances are carried from the land in the various kinds of crops, dairy produce, wool, and in the bodies of animals, which may be disposed of from time to time; as also what substances are returned to the land in home-made manures and droppings of animals; and even the differences in the qualities of the latter, on account of the ages of the animals, and of the kinds of food on which they have been fed. All this chemistry has done, and can do, for agriculture, and can also give a recipe for supplying the waste occasioned by the production of any particular crop or produce. This recipe may consist either of substances similar to those extracted, but in some other form; or, if the soil has been analyzed, it may consist partly of stimulants to act on ingredients present, but in a dormant condition. In pastoral districts, where little or no cultivation takes place, great numbers of animals, as well as large quantities of wool, are annually sent therefrom; and, although no return is made thereto by the hand of man, no apparent deterioration of the capabilities of the pasturage takes place; on the contrary, the numbers and qualities of the animals have rather been on the increase for many years past. Chemistry explains the cause. In these districts, the portions of the rocks which are eroded by atmospheric agencies supply mineral ingredients amply sufficient to supply the annual waste. It is not so on more level and richer soils. Even the richest of these, when constantly used for pasturage, particularly by young or dairy stock, in course of time become exhausted, and refuse to yield the accustomed pasturage. The chemist can give a recipe for the proper substances to apply to restore the pasturage to its pristine luxuriance. Chemistry explains how many practices carried out in agriculture produce certain results, such as the ploughing of the soil, the disintegration of its parts, and the application thereto of various substances; also, why it has been found to be more suitable and profitable to give animals which are arrived at maturity, when preparing them for the butcher, a different kind of food from that given to younger growing animals when preparing for the same purpose. Chemistry ascertains for agriculture the component parts of all substances which are applied as fertilizers or stimulants to the soil, so that the agriculturist can apply any particular ingredient which he is aware the land may be in want of, or withhold that which he knows it may have in excess, and can apply with some degree of certainty the proper kind and quantity of specific manure for any particular crop. Chemistry also has been of great utility to agriculture in enabling manufacturers to supply special manures made from substances which might not otherwise have been used for the purposes; likewise in detecting adulterations in substances vended as special manures; or in the variations of these from a guaranteed analysis. The same with substances used as cattle - food, smearing materials, and such like articles, which the agriculturist requires to purchase. Chemistry was of much utility when Peruvian guano was at first imported into this country, and facilitated the earlier transactions in the article by determining its comparative commercial value. I believe it was chemistry, which, some years ago suggested the application of electricity to the soil as a means of increasing its fertility, but I am not aware of any instance in which the artificial application of this subtle agent had any appreciable beneficial influence on the produce of the land to which it was applied. I have endeavoured to notice a number of the benefits which chemistry has conferred on agriculture—and they are not of small importance—and no doubt have omitted others; but upon the whole, considering the great advantages which other branches of industry have derived from this science, I think there is some cause to regret that its researches and discoveries have not effected some greater practical benefits for agriculture than it has yet done. With few exceptions this science has rather been following in the wake of agriculture, in searching out and explaining how

and why certain causes produce certain effects, rather than in the discovery of anything new. I am not aware of any one discovery made by the researches of chemistry, within the last hundred years, which has produced anything like an era in the practice of agriculture. No such era as that which was produced by the introduction of the common farm cart, or that produced by the invention of the thrashing machine, or the more recent invention of the reaping machine. It has been noticed already that the chemical analyses of soils at present obtainable are not wholly to be depended upon, particularly when these contain much vegetable matter. A considerable portion of our richest land consists of alluvial and other deposits, and these also must present greater difficulties to the chemist than soils of a more simple composition. Nevertheless I think the agriculturist has good reason to bear him out in coming to the conclusion that chemistry is behind the requirements of the day, if it cannot furnish him with a thoroughly reliable analysis of these, showing the whole of the component parts of which they consist. That chemistry has not arrived at a state of advancement sufficient to satisfy the wants of agriculture, we have a notable instance in the evidence given by eminent chemists before Parliament some three years ago, as to the sterility or fertility of the Maplin sands. Here, one would have expected there was no great difficulty to overcome, and yet the opinions expressed were so opposite as to detract greatly from the confidence which could be reposed in the correctness of the opinions of either. I am not aware that it was the professor of chemistry who first taught man to apply dung to the land for the purpose of increasing its fertility. I am not aware that chemistry taught us the benefits which the soil would derive from irrigation before the same was put into practice; or that the suggestions of the chemist were the means of causing the husbandman to apply marl, or lime, or shell-sand, or bones, or guano to the land. A substance similar to guano, namely, the dropping of sea-birds, found in the caves on our sea coasts, has long been used, and highly-prized as a manure in this country; and the droppings of the hen-house and dovecot did not require to go into the crucible of the chemist before their rich manurial properties were discovered. Chemistry has not done much towards an increased application to the land of the sewage of towns. Agriculturists have practically shown how in some instances it can be employed with great advantage in the irrigation of meadow land; but chemists hitherto have failed to discover any economical means of separating the manurial constituents from the great excess of water which prevents its profitable application to land under cultivation. The question of what is to be done with the sewage of our large towns, is engaging the attention of many eminent scientific men at the present time. It is one of vital importance to the citizen, and one in which the agriculturist is much interested. The point desiderated is the separation of the fertilising constituents from an excess of water, and the economical solution of the problem involves the acquisition, for agricultural purposes, of matter, the value of which has been calculated at many millions sterling per annum. The inducements to increase chemical research on the subject are great, and it is to be hoped that, although the problem has hitherto baffled the science, some fortunate discovery may soon be made, and the discoverer have the honour of redeeming the science from its present position of appearing to lag behind the requirements of the age—give increased revenues to the cities, and confer an important benefit on agriculture. Within the last hundred years the improvements which have taken place in agriculture have been very great. Eras therein have been noticed as having taken place. Another of these is all but effected, namely, the economical adaptation of steam power to the cultivation of the soil. This, and the utilisation of the sewage of towns to land under cultivation, appear to be the most prominent agricultural problems of the day. The mechanical arts have the merit of what has been done in the former, and the science of chemistry is confidently looked to for the solution of the latter. During the current century other branches of industry have been amazingly benefited by the researches and discoveries made by chemistry, and why this science has not conferred greater benefits than it has done on agriculture, can be accounted for only on the supposition that the requirements of the latter are more varied and complicated than those of the former, or that agriculture has advanced farther on the road to perfection.

## ROOTS AS FOOD FOR STOCK.

At the Winfrith Farmers' Club Mr. T. H. SAUNDERS, of Watercombe, read a paper on "The cultivation of roots, and their relative value as food for cattle and sheep," confessing his ignorance of any new facts bearing on the subject, which he brought forward rather with a view of gaining information from the experience of others in the discussion which should follow. They would agree with him that root growing was the foundation of all good corn farming, and upon roots and other green feed they greatly depended for the maintenance of their increased breeding flocks, as well as for the fattening of cattle and sheep which was so extensively practised in that district. The subject was rendered still more important at the present time from the fact that the turnip crop, which had become so extensively grown, was beginning to fail in some soils, just as its value was being better understood. What they desired to ascertain was how to grow the heaviest crop of roots, which should be of good sound quality at the time they were required for feed at different seasons of the year. Whilst, therefore, he related as briefly as possible what he had seen practised, and had generally adopted on his own farm, he did not ask the gentlemen present to adopt his suggestions without first weighing them in the balance with their own experience, so as to determine which was the better plan—always keeping a view that different localities required different management. Experience had taught him that the science of root cultivation and the selection of the best qualities of seed was a subject of far greater importance than he could convey to them in words on that occasion, although he felt assured it was the foundation-stone of all good farming, particularly on the light soils of that district, and the cold hilly lands around; indeed, he invariably found his corn crops succeed in rotation best after good roots. The question of the best seeds to sow depended greatly upon the purpose for which the roots were to be fed off, whether for wheat in the autumn, or for spring corn; and before he sowed turnips on his farm he always considered for what purpose they would be required. With regard to cultivation he generally sowed the greater proportion of his turnips and swedes after a previous green crop fed off the land; but to pursue this system their soil must be as free as possible from couch-grass. If they had a piece or two which were not so clean as they could wish, they should use Bentall's broadshare or some such implement as soon as possible after the corn was removed in harvest time, previous to sowing their green crop in the autumn; thus, if the land was pared during the hot weather and it was worked well afterwards, the little couch would soon be destroyed. But to do this effectually the corn should be cut close to the land, otherwise the stubble would prove troublesome in the operation of dressing. As soon as they considered the grass on the surface was dead, it should be ploughed in, and the land kept constantly stirred until it was perfectly clean; then, without further ploughing, rye, vetches, or winter barley might be sown. The first piece of wheat stubble that was ploughed and cleaned he sowed to trifolium, as soon as the corn was off, otherwise he could not ensure a plant; he also sowed some Italian rye with the corn in the previous spring, for early feed before turnips could be obtained; and for second feed he invariably sowed some hop and white Dutch seed, to feed before turnips, instead of vetches, as he thought it answered better on light or sandy soils. He would not recommend this system unless the land was perfectly clean, and they had better have no green crop than be obliged to send a man over the turnips with a prong and basket to take up all the grass which was left and growing amongst them—a process which would involve an expense of from 1s. 6d. to 3s. per acre. In the event of the land not being thoroughly cleaned, it should be well fallowed, or it would be in a foul state throughout. He was strongly of opinion that autumn cleaning was not properly attended to in many instances; and he felt sure that as much could be done in one week at that time of the year as in a month of spring. By cleaning the land early it got into a forward and better state for the root crop, particularly when the land was required for mangold, early in the spring. He could not at present enter into the detailed

process of autumn cleaning, but had said thus much in order to draw their serious attention to the important question now under their consideration, by which they would be enabled to grow a good green crop, to be fed by sheep before sowing the swedes or turnips, which would very much assist the keeping of their sheep in the early summer months, up to the middle of July, and by the extra manure produced by such green crops they might grow as good a crop of swedes or turnips as after a bare fallow, in the average of seven years. In dry seasons the crop might not be so good, but after dry weather it would be better than fallow generally. He recommended them to sow their first swedes in a bare fallow on high cold lands, where they could not by early sowing get a green crop up fit to feed in a fair season to sow trifolium, and allow their sheep to feed on the green crops in the more favourable situations on the farm. On strong clays, it was dangerous to attempt a green crop before swedes, for if the season was very dry the seed would not grow till the season had advanced, and the crop would be lost; but they might perhaps be enabled to get a crop of common turnips. The mode of sowing, in the two descriptions of land to which he had referred, must be left to the judgment of the occupier. He had a variety of soils on his farm, but had not found much difference as to which produced the best roots after a green crop, provided the season was not too dry, and the land was finely-pulverized to vegetate the seed. In the event of the season being dry, he found the free working of light, loamy soils vegetated the seed and carried on the plant best during such dry weather. He had a small portion of very strong clay land on which he never attempted to sow a green crop, if he would make sure of growing turnips. They would greatly forward the green crops and produce a much heavier yield of turnips by placing seven or eight loads of yard manure per acre—or more if they could spare it—on the land before ploughing in the autumn. Then, after the green crop was fed off, the land should be ploughed sufficiently deep to bring all this yard manure again to the top; still it should not be so deep as to lose the valuable manure left by the sheep whilst feeding the green crop, and from which the turnips or swedes would derive great benefit. By well working the land the yard manure would become thoroughly mixed up, and the young turnips would soon discover and feed on it with a benefit that would speedily become perceptible. If the land was in fallow, the yard manure should be put in before ploughing the last time but one—he preferred March or the beginning of April; then it should be ploughed-in immediately. The land should be kept constantly stirred until required to be ploughed for sowing, when most of the manure would come to the surface, when it would be mixed by the drags and harrows, and thus it would speedily come into contact with the young plants. He spoke of the different results produced from putting on the manure at the last ploughing, and stirring it up as he had described, and by the latter plan he had found a much greater weight than by the former. He was of opinion that the roots which fed upon the manure were those which had access to the air, whilst the tap roots descended into the earth and supplied the moisture. He also believed that the manure ploughed in deep was sealed down by the weight of the furrow, and in a great measure remained dormant till brought up again; but land that had only one ploughing was different, as the furrow lay as it were rather hollow and admitted the air to the roots, which would feed the plants with the manure. Having said thus much on preparing the land, he then proceeded to state in what way he liked to put in the seed. He generally drilled his swedes with about two or three cart-loads of compost, per acre, made of pig dung and earth, and a little dry ashes if he had any—sufficient just to make it run well through the drill—with two sacks of bonedust, ground finely, and about two cwt. of superphosphate, if the land had had no yard manure; but if it had, then less artificial would suffice. Some objected to the expense of drilling compost; but on his "criddy," chalky land he found it made the plant start away in early growth much the best, and a good crop was ensured. He did not like to drill the seed immediately

after ploughing, as the seed was thus put into the dry surface-earth that had been turned under, and it died away; but by keeping the land rolled down a day or two the soil became moist, and it quickly vegetated; the land should then be harrowed so as to destroy the annual weeds. They would then be able to see to hoe the turnips better and the crop would be clean. An inch was about the depth to sow in dry weather; when it was wet the shallower the better. He then stated the way in which he prepared his land to receive the swede or turnip seeds after the green crop had been fed off. He never ploughed the land more than once, and that as soon after the sheep as was convenient; it was then rolled down and dragged over, when it remained for a week or a fortnight, thus allowing the sun and atmosphere to pulverize the soil. He had often found a better crop when the seed had been sown a week or two later under that process than when sown directly after ploughing and when the land could not be properly worked. He endeavoured to get as much land ploughed and dragged as he possibly could, and then, after a middling shower, the drags and chain-harrows could be brought into use. Some people had failed in endeavouring to grow roots after a green crop; but that failure was attributable to not allowing time for the land to pulverise before being worked with the tackle to receive the seed. He thought it must have been too tough or too "criddy" for the young plant to flourish, as he had often found on his own farm when sufficient time had not been allowed, or his man had improperly worked it in his absence, that the crop was bad. He remembered having a small piece in the middle of a field so last year, while in the adjoining ridge, which had been ploughed up afterwards and sown a fortnight later, when it could be properly worked, the roots were double the size. He had scarcely ever failed by this system in all sorts of soil, and he thought by his having gained the first prize of the Club last year for the general root crop, in competition with several eminent farmers, who showed fallowed land against him, that the system was an advantageous one. That was the seventh first prize he had won in connection with the Club under the green crop system, as he scarcely ever had any fallow. He had three acres last year; but they were by no means the best, though the land had been prepared for mangold. His reason for growing roots after a green crop was to keep his sheep on it, instead of feeding off any of his regular crop of young clover; this gave him a good crop of hay to go with the turnips in the following winter, and afforded his sheep more clover heads during the summer, after being mown for hay, which was more wholesome for sheep than stale-fed land. Speaking of club-root, he thought a remedy would be found in applying chalk—or lime would do as well, only it would not be so durable in its effect. If no chalk or lime could be obtained, he recommended extra ploughing, if on fallowed land, and the seed should not be put in till the latest season. The time of sowing depended greatly on the soil and climate, and to what purpose the roots were to be applied; but this must be left to the judgment of the cultivator. His hilly cold land required to be sown a fortnight or three weeks earlier than the kindly warm soils, which, if sown too early, might look well through middle of summer; but in the latter part they became mildewed, and not above half the crop they promised to be in their early growth. Seasons would beat the best of judgments. Many of them were in too great a hurry to sow their first field, which spoiled the autumn growth of the roots when they were not required for feeding until winter or spring, when the quality was found to be bad, and they had no proof in them. As many of their farms were particularly subject to mildew, their great aim ought to be to sow the different crops at such times that they would become ripe when they wanted to feed them. As to the best sorts to grow, and their relative value as feed for cattle and sheep, he thought that was a question which would be best decided by the superior judgment of occupiers of different farms, who best knew when they would require to feed them, if for the beast in the stall, or whether it was for wheat in autumn, or for winter or spring-feeding with sheep. That was a question which he (Mr. Saunders) could not not decide, as different people were of different opinions, and the varieties of swedes and turnips were so numerous that he had not studied to grow the sorts which had been recently introduced. His practice had been generally to sow what was known as Devonshire greystone, which produced an early crop of large size, and were very proofy, though they

varied in colour. These he sowed early in June to come in for his first feed, and he took care to grow as many as he thought he should require for three weeks' or a month's supply. He sowed another piece of the same kind to come in succession, and about the same time he put in some yellow tankard or common green round, which would come for feeding in succession. About the first or second week in July he began to sow the common green round turnips for the winter after he thought it was too late to continue his swedes owing; but he preferred swedes up to that time on all the land where the green crops had been fed off, and which he wanted to stand over the winter for spring corn. He began sowing swedes in his coldest land, if the green crop was fed off, about the first week in June, and if he thought they would be required to be fed early in the winter he used Skirving's seed, as they produced the largest root; after them he sowed the Sussex, or, as some called them, Wyatt's, which, however, did not yield quite so heavy a crop, though they could make up for deficiency in size by planting them thicker. The latter sort, moreover, seldom mildewed, and would be of first-rate quality if they were to be fed before March, and did not get injured by frost. He found the old greentop to be most to be depended upon for feeding after March was in, unless the two kinds he had named had been pulled before the frost set in. Though the old greentop swede looked small in the autumn compared with the Skirving's and Wyatt's, yet they grew during the winter, and he had generally found them keep more sheep per acre after the middle of March; and they would be sound and good all through the spring if the greens were mown off as soon as they began to shoot. In order to ensure getting the different sorts all right he grew from his own seeds, selling every year those which he did not require for his own use. With respect to storing the two early kinds of swedes to which he had referred, he found those which were pulled in November and December, even in case of the winter being mild, were very superior in quality to those which had remained in the ground, when they were cut on the same field. He found the best and cheapest way was to stack them in small heaps in the same field where they grew; the heaps should be of an oval shape, about four feet wide at the base, something in the shape of a potato pit, the heaps to contain about two cart-loads each. The turnips should be all packed with the greens on, and with the crowns hanging downwards, so that the leaves might form a thatch for the heaps; and he generally put a little earth to cover just the top lines, as a ridge was bad to a rick; but this should be done as soon as the heaps were formed. By this method he found them much dryer and better than if they were merely pulled up and laid in rows all throughout the field with earth ploughed against them. If the roots were laid rather thin, it could be done well for 4s. per acre; but, if thick, 5s. was a good price. All should be pulled, and if cut from the heaps care should be taken that all the trimmings should be well spread about the field, otherwise the corn crop would be laid down where the heaps had been trimmed. He had found the roots keep much better by adopting this method than when put in large heaps and covered up; though he recommended a few large heaps where it was possible they might require to cut them in frosty weather, in which case the heaps should be earthed up, so as to keep out the frost. He attributed the decay of roots in a great measure to the freezing of the moisture in their reins, which caused them to burst. He was of opinion that no one should grow swedes oftener than once in eight years in the sandy heath soils of that locality, where the land was subject to club-root unless chalked. He thought the mangold roots were very much better adapted for such soils. They should all have a portion of mangold on their farms for feeding beasts and sheep in spring time, as it was much preferable to swedes after the middle of April; besides, they could grow one-third in weight more mangolds than swedes, with a very little extra dung, and he believed about equal value per ton. He held that mangolds were the most valuable crop they grew, though some differed from that opinion on account of their not succeeding so well with the following corn crop; but he did not complain so much of that. He grew from 20 to 30 acres annually, and should increase the quantity were it not for fear of losing his previous green crop for sheep, which he so highly valued at that season of the year; and as mangold should be sown by the first week in May, there was not sufficient time for getting a green crop before. There were three reasons

why they should grow mangold. First, because they could produce greater weight; secondly, it afforded a respite to the land from swedes until the next rotation of the farm, and would prosper where swedes would get diseased in many soils; thirdly, it was not liable to half as many enemies as the turnip, and should the seed in any way fail, the land would be in first-rate order to try for swedes. If necessary, mangold could be kept for feeding all through the summer months. With regard to preparing the land for it, he invariably followed the same method as for turnips on a bare fallow. If he intended putting his mangolds on the ridge system, he generally ploughed in about six loads of yard dung per acre early in the winter, and about as much more put under the ridge just before sowing the seed. When the ridges were open he sometimes sowed 2 cwt. of Peruvian guano; but if not, he sowed the guano when the plant was horse-hoed a second time, hoeing sufficiently deep to stir it well in. But when he sowed his mangold on the flat he only put the first quantity of manure which he had named, and then he usually drilled 2 cwt. of superphosphate and  $\frac{1}{2}$  cwt. of bones, drilled with about three cart-loads of compost just as he did for turnips, then he sowed the guano broadcast and hoed in. He usually ridged 27 in. apart, because that was a convenient width for the dung-cart wheels, but 24 in. was sufficient on the flat. He thought the ridge system was cheapest and best when the farmer had plenty of yard manure to spare. He preferred, if possible, to ridge up his land two or three weeks prior to sowing the seed, as the small weeds could be destroyed by means of a light seed harrow. This should be done two or three times, and if the land was very weedy they should run a double-mould plough very shallow, which by turning the earth again would destroy the small weeds in the hollow of the ridged land. He then put in his drill and drilled about 6 lb. or 7 lb. of seed per acre to ensure a thick plant, at about three-quarters of an inch deep, and this he followed by a light seed harrow. He did not recommend rolling, as the land was apt to crust after a hard rain, and in such cases he had found the seed not come up well; but if dry he put the seed full an inch deep, or rather more. There was one other reason why he liked the ridge system, viz., that they could use the horse-hoe early, if their land was ready, as they would know where the drills were. They could not use the horse-hoe too early in the season, after the drills could be distinguished, for they would kill more seeds by once hoeing them in their infancy than twice afterwards. If they were troubled with chickweed, it could not easily be destroyed after it had become old. They could not be too liberal with hoeing, and the crop ought to be horse-hoed twice before they were singled by hand, as they could see how to go close to the plant a second time. He was not an advocate for singling the plants to their proper distance until they were sufficiently strong to stand against the hoe; and, as soon as they grew upright, the horse-hoe should be again used, which would kill the weeds that had been pulled between the drills by the hand hoe. The hoeing to which he had alluded referred equally to swedes and turnips as well as mangold. With regard to the distance between each plant, he related an experiment which his son tried some years ago. He took the trouble to plant several drills on the ridge, at 27 in. between the rows, all through the field, from 8 in. to 16 in.; and, upon weighing the lots when taken up, he found the 10-in. drill to be the heaviest, and the 9-in. next. He was in the habit of drilling all his swedes and turnips at 18 in. apart; and as he grew nearly all after a green crop, and found a thick plant was the most weight, he generally endeavoured to get those left from 7 in. to 9 in. between the plants. In conclusion, he invited discussion upon the subject.

Mr. W. BUDDEN thought it was not the best plan to burn the couch; but he would rather raft it soon after harvest; and, by working it about, a greater portion of it could be killed; and it should then be ploughed in as deep as possible. By that system they would get rid of the couch before they wanted to sow the turnips; and from the crop he sowed last year, he did not take a single cart-load of couch. He did not agree with drilling compost, as the trouble of mixing it was so great.

Mr. C. BESANT spoke in similar terms with respect to the couch: he preferred to treat it as Mr. Budden had said than to burn it. Referring to club-root, he sowed a piece of swedes for early feeding, after trifolium, and the plants grew well until after they had been hoed some time, when he found

they had become club-rooted. He could not account for this in any way.

Mr. W. LONGMAN expressed his opinion that the manure should be sown broadcast over the land, rather than be drilled in, as the plants derived greater benefit from it. If a portion was sown broadcast, and the remainder drilled, it would be equally distributed over the land.

Mr. READER observed that frequently, when superphosphate was drilled with turnip-seed, the plants grew away rapidly at first; but, as they attained size prematurely, they became rotten early in the season. If they wanted a good crop of turnips, they ought to have the manure stirred in all over the land. He sowed bones broadcast early in the season, though he should not do so in light lands, because there was not acidity enough in it to dissolve the manure, as was the case in most of their sour lands. Mr. Saunders had justly observed that every person must sow their land according to the soil. He (Mr. Reader) believed Mr. Saunders was perfectly justified in growing a green crop previous to a root-crop; but if he was to try that experiment, he should lose half his crop. He knew a gentleman in that room, who tried it most unsuccessfully some years ago, and had not adopted it since. If they had kindly soil, and well situated, he thought they might grow a previous green crop with advantage; and in many parts of Hampshire they can grow better root-crops by adopting this system than after fallow. He was somewhat surprised to hear Mr. Saunders advocate mangold as the best root-crop; and he maintained it ought not to be included in the general root-crop. He agreed that it was an advantage to grow mangold, as the crop produced was of such great weight.

Mr. SCURT said this was a most important subject, as a good root-crop was the foundation of all good farming. It required a great deal of judgment to grow roots after a previous green crop. Speaking of rafting after a green crop, he said he liked the plan, if they had strength enough to carry it out well. By rafting behind the sheep, they not only had a chance of securing a better plant, but the manure left by the sheep was mixed with the soil, instead of its being washed away by the rain. With respect to chalking as a preventive to club-root, he advised them not to chalk too heavily, as they might destroy the stability of the soil. If there was any acidity in the soil, by putting mangold into it, instead of swedes, that acidity would be extracted, and the swede-crop would probably be a good one in the next rotation. There were many sorts of swedes; but he thought more depended upon the time of putting in the seeds than the variety chosen. He did not agree with Mr. Saunders growing his own seeds.

The CHAIRMAN proposed a vote of thanks to Mr. Saunders for his admirable practical paper; and, Mr. Saunders having made a short reply, the proceedings terminated.

**SAWING OFF THE HORNS OF CATTLE.**—Professor Spooner, President of the Veterinary College, London, on a trial in Dublin gave the following evidence: "I have said that I consider this to be a very gross act of cruelty, and for this reason, that the horns of oxen are unlike those of the deer species. They have a large proportion of bone growing out from the bone of the head, and that is surrounded by a heavy sensitive structure, so that, to cut the horns, they had to go below where it was simply horny, and the animal had to suffer great pain. The nearer the operation was performed to the skull the greater the suffering. That bone was hollow—that is to say, it had not one single horned cavity—but it had several cells which extended into the head, though not to the brain, but close to it. These cavities were exposed, by the removal of the horns, to the air; and as they were lined with a delicate sensitive membrane—there being besides a delicate sensitive covering outside—great suffering must be caused. The cavities were never intended by nature to be exposed to the air, which brought on an inflammatory condition. These cavities were very apt to be inflamed, and the inflammation was very likely to be extended to the membranes of the brain, causing madness, lockjaw, or other dangerous results. This operation is one of the most painful and unwarrantable that could possibly be performed on cattle."

## AUTUMN NOTES.

The life of a farmer is popularly supposed to be one of uninterrupted pleasure, enjoying as he does all the blessings which abundant exercise and the purest of air can confer upon him. By many he is supposed to spend his time in the pleasing contemplation of Nature's beauties, as exhibited in graceful contrast during the recurrence of sunshine and shower and the ever-varying seasons.

As the natural consequence of a feeling which has such a firm hold on the popular mind, every succeeding year finds numbers of people embarking in the business of farming, who, having made some money in trade, imagine that they have only to get the lease of a farm, remove themselves and families and household goods to the country, and forthwith begin a life of ease, comfort, and enjoyment.

To such persons the amount of pleasurable excitement and happiness which they derive from their country life is generally more regulated by the amount of capital otherwise invested should they be fortunate enough to have such a reserve, than by that portion of their fortune which they have devoted to farming.

In reality farming is a business beset with anxiety, and so much of the year's success depending on the timely and thorough performance of each operation, his personal energies are so much taxed and his time so fully occupied as to leave but little time for relaxation.

Nearly every season is alike to him, as one round of operations are no sooner completed than another equally important claims his attention; nay, so harassingly quick do the affairs requiring almost instant and urgent attention succeed each other, that he finds it sometimes difficult to decide whether it were better to begin making preparations for next season's crop before having finished securing that of the present.

This is often the case when the harvest has been a late or protracted one, when on certain soils the seeding of the land with wheat must be proceeded with at all hazards, to delay being to risk losing probably the only opportunity that may be afforded for the entire season of getting this most valuable of all the cereals committed to the earth.

During the earlier part of the season he is equally engaged, when Nature in the clear blue sky overhead, the green earth underneath, the warm soft atmosphere, and trees and plants in brilliant dress, shows to the most unobservant that summer, the pleasant season of out-door enjoyment, has arrived. Every one is then bent on pleasure. The citizen hurries with his family to the country or the coast, there to recruit his own and their exhausted energies, and bring back a shade of colour to the pale cheek.

The man of business, who, albeit, devoting himself for the greater part of the year to his office or desk, is yet a passionate lover of the gentle art, and a life-long admirer and follower of Old Izaak, now hastens with railway speed to his favourite river, perhaps several hundred miles distant from the scene of his ordinary labours, there, with rod, line, and fly, to enjoy his brief holiday in his own peculiar way.

Solitary it is to be sure, and often singularly barren of creature comforts, the rough very frequently predominating over the smooth; but the pleasurable excitement which is the invariable result of even a moderate degree of success, is not to be bartered for any amount of that yellow dust which ordinary home-staying mortals call "gold."

While others are enjoying themselves in this and other ways, the farmer is busy in the field, straining every nerve to get the green crops in in good season; and long before he has this part of the year's business completed, the hay has become fit to cut, and demands his instant attention.

When this occurs—and it very frequently does—he has two important processes on hand together, neither of which will brook delay, every day that passes shortening the season, and lessening the chance of a full crop on the one hand, and on the other a day or two's neglect may injure the quality of the hay very materially, and, in the event of a break in the weather, greatly increase the labour of saving it.

We thus find that the farmer, living on the profit of the

land he cultivates, has but little time for that kind of pleasure which consists in absence from the scene of one's daily pursuits, and exclusive devotion to some species of amusement for a space of time, however brief; yet, if a contemplative turn of mind, he can extract a certain amount of pleasure from the scenes by which he is at this time surrounded.

Vegetation now makes rapid strides, each day almost making a perceptible difference in the growth of the various crops; the fields are clothed with verdure, and the year's food of man, and the animals he has taken under his care, rapidly approaches maturity.

There is quiet enjoyment to be derived from the contemplation of the crops as they bask and glitter in the sun, or bend gracefully in miniature waves as the wind sweeps across the fields. Hope rises high in the bosom of the farmer as he sees the crops with which he has taken so much trouble, and gone to such expense, covering the ground, and tillering out under the combined influence of heat and moisture. The broad curling leaf, the delightfully rich colour, and the strong stem gladden the heart of the cultivator, giving him promise of a remunerative return for all the labour and anxiety undergone by him in the preparation of the soil and getting in the seed. There is a charm in looking at a healthy and promising field of corn, which we think can only be properly appreciated by those who have been behind the scenes, and have borne a share in the heat and burden of the day, by taking an active part in the labours connected with it, or who, although not exactly having put their hand to the plough, have been present at all the preparatory operations, and have a pecuniary, and therefore vital, interest in the success of the crop.

However well things may look during the earlier stages of growth, and whatever the amount of laudable pride evoked in the bosom of the tiller of the soil, when regarding the flattering appearance of his crops, it unfortunately does not always fall to his lot to realize in harvest the rich reward he anticipated.

Last year late frosts injured the wheat crop to such an extent as to reduce the yield in many cases to half, and scarcely a district in Great Britain or Ireland escaped without a loss of at least one-third of what might fairly have been estimated, from the appearance of the crop when growing.

The present year has been an anxious one, and very many farmers will suffer heavily on account of the long-continued drought, particularly on light land. Not to speak of the temporary annoyance and inconvenience occasioned by the scarcity of water for live stock and household purposes, the crops have suffered severely. By the reports published in the *Mark Lane Express*, we find that turnips in many districts are either almost or altogether a failure; hay not half a crop; and corn, which has arrived at maturity more by a drying off than by a really ripening process, can scarcely be expected to turn out such a quantity of clean corn as will amount to anything like an average crop.

Such casualties are unavoidable, and human foresight is powerless to prevent them. It is utterly impossible for the most experienced and skilful in agricultural matters to foretell or even give a close guess at the probable yield or outcome until the season is well advanced; in fact, scarcely until a portion at least of the crop has been subjected to the final and truthful test of the thrashing-floor. The man whose heart is in his business, and who not only follows it as a means of living, but loves it for its own sake, does not become discouraged by even a succession of difficulties; but, "by no failure vexed," makes more strenuous efforts to overcome the natural difficulties by which he is surrounded. He brings in all the aids which science and practical experience has placed within his reach, tries new experiments for the purpose of lessening the cost of production and for hastening the growth of the various crops, and feels always certain to succeed the next.

There is one particularly favourable feature in the character of the present season which recommends itself very strongly to the notice of the agriculturist who is on the watch for every

opportunity afforded him for promoting his interests. This consists in the unusual earliness of the harvest, which permitting the fields to be cleared of the grain crop in time for rape, mustard, turnips, and grass-seeds to be sown on the stubbles, with a reasonable prospect of a considerable increase in the available amount of food for sheep and other stock for the spring, thus to some extent enables him to redeem a portion of the loss sustained by the partial or total failure of the summer-sown crops. Referring to the same authority to which we have already alluded, the *Mark Lane Express*, we find that this opportunity is being made largely available, the example being set by England's leading tenant farmer, a gentleman whose advice and example may at all times be trustfully followed. Notwithstanding the apparent lateness of the season, it is astonishing how Nature compensates for this drawback, by a quickness of growth and a rapid approach to maturity quite unknown at an earlier period. This is accomplished by the high temperature to which the soil has been raised, acting like a hot-bed upon all seeds submitted to its influence; the plants are up at once, and pass through the earlier stages of their growth with astonishing rapidity, and actually, when well nourished, get forward in time to have all the benefits of the maturing months—viz., end of August, September, and October, and even November some years, without having the disadvantage of having languished under a burning sun for months previous, and become hard and cranky in consequence.

It is considered rather discouraging to be sowing late crops, more, we think, however, from the thought of its being unusual and out of season than from any well-founded fear of their not doing well, as when given a fair trial they far oftener succeed than fail. No later than last season we sowed seven acres of yellow and white turnips after winter tares, at a time when the soil was in dust, containing apparently not a particle of moisture; yet trusting, as we have this year done again on a more extended scale, even at a later period, that the quick rush they would make when rain did fall would enable them to overtake those sown nearly two months before. They lingered long, and although thinned in August, made no bulbs until well on in September; but when the bulb-forming process did begin, they seemed to attain their full size almost in a few weeks. When lifted in December they were a magnificent crop, the size being large—no blanks in the drills: (by the way, a most important feature, without which a full crop is scarcely obtainable), and scarcely a rotten turnip to be found in the entire break.

It is highly important that notes should be kept of former experiments, either of one's own or one's neighbours, which may have come under his observation; as former successes are a great encouragement to attempt certain deviations from ordinary routine, exceedingly necessary under existing circumstances, but which might hardly be attempted but for the fact of former experience being noted down, acted upon, and so rendered useful.

J. S.

## FARM LEASES IN SCOTLAND.

At the quarterly meeting of the Ayrshire Farmers' Club, Mr. DAVID CUNNINGHAME, of Chapelton, the President of the Club, read the following paper:

The subject of leases between landlord and tenant has lately received a good deal more consideration than at any former period; still, there are many points of great interest, that affect both the contracting parties, that have not been considered with that due forbearance which their importance demands, by those whose duty it was to do so. Many landlords labour under the impression that it is only by inserting very stringent clauses in the leases they grant to their tenants, that they can protect themselves from operations on the part of their tenants that will deteriorate the value of their land. But the exercise of a sound discretion on their part, in the selection of tenants only who are possessed of the necessary capital and skill, is the best of all guarantees they can obtain that their land will be both improved and more profitably cultivated by acting in this matter, as here pointed out, than by any clauses in a lease, however protective they may appear on paper. One of the most valid objections to fettering clauses in leases is where a landlord and tenant agree and enter upon an improving lease on a farm standing in great need of improvement. In such cases very often neither the landlord nor tenant may have formed a correct estimate of what various portions of the land is calculated for, and consequently to hamper, by inserting clauses binding them to a certain course of culture, might be highly prejudicial to both their interests. In such cases the best plan is to act in a conciliatory spirit, and if the landlord has been careful to select a proper tenant, his skill and capital is ample security that whilst he is doing the best he can for his own interest, he is also acting on the best course for his landlord. There are landlords—and they are not a very small minority—who think that they are prevented from getting the full value of their land when they are restricted in their choice. To men possessed of both the necessary capital and skill, opinions on this subject are various; but there is so much competition among farmers, both with and without the requisite means and knowledge, that it is an acknowledged fact that land in the West of Scotland generally is let for all it is worth, and in numerous instances for more. The greatest obstacle that stands in the way of a landlord obtaining the very highest value that can be got as rent for his farm, is the unjust, antiquated, and absurd law of hypothec. Many a well-qualified, industrious man, but who has not quite the full amount of means necessary to enter upon

a system of culture which he thinks the only one that would be profitable, is prevented from offering, and simply so from the greater difficulty that he has to obtain the necessary advances from those who would be willing to do so if this remnant of feudalism were wiped out of the statute book. Nothing can be more prejudicial, not only to landlord and tenant, but to the general public, who have a clear interest in its abolition; for whatever obstructs the introduction of skill and capital into our agricultural pursuits is a national loss. In many cases now the means invested by the tenant are so much in excess of what in former times was the case that it not unfrequently happens where an active and well-qualified tenant enters upon an improving lease, the capital requisite for the successful development of such a farm is at least a third of its value. Another great error very general among landlords is the stock of game maintained on their estates. The majority of farmers do not object to a fair but limited head of game, so as to afford a fair day's sport in the sense in which the word "sport" ought to be interpreted by the true and genuine sportsman. But a little reflection ought to convince all reasonable men that a tenant who has to feed and maintain in excess either rabbits, hares, or winged game, cannot but suffer a sad waste of all that his industry has placed there—not certainly for the purpose of maintaining a stock in which there is in reality no property until they are in the sportsman's bag, but for the better and more reasonable purpose of rewarding him for his skill and industry; and this injustice preases in a far more injurious proportion on the tenant who has pursued a system of culture known as high farming, than on the careless and indifferent tenant who takes matters in the old-fashioned manner of his grandsire. The previous part of this paper has been mainly devoted to the duties of landlords. But tenants have duties to perform, and it is as important they should be well understood and acted upon by them as it is in the case of the landlords. They should carefully examine and consider all the clauses in any lease presented for their acceptance. In many instances there are clauses inserted totally at variance with the common laws of the land, and that could not be maintained in a court of justice; in others, where from insufficient knowledge on the part of either landlord or tenant, or, as often happens, of both the parties, covenants are inserted totally destructive of both interests. Mr. Baird, of Cambusdoon, in his capacity of Chairman of the Ayrshire Association, at one of the society's dinners lately, after enumerating many good objects the society had been the

means of disseminating, mentioned that there were still numerous reforms to be pointed out and overcome; and in illustration of the subject now under consideration, stated that he had lately seen a man struggling with his horses and men to employ land for a purpose for which it was totally unfit, for the mere purpose of carrying out some preposterous clause in a lease foolishly entered into. An extensive proprietor in this county has lately introduced, in a partial manner, the system of yearly tenancy, or as it is commonly known in England by the term "tenants at will." No satisfactory investment of either skill or capital can be made in land so held. What has made the agriculture of Scotland what it is but the almost universal custom of nineteen year leases? and we can conceive nothing that would prevent the advancement of successful agriculture so much as this Anglicised system, which, if allowed to take root here, will prove itself of a retrogressive character, and highly disastrous in its effects. The mode in which the attempt to introduce it here has been made is worthy of remark, as it is of a most insidious nature—viz., to allow tenants whose leases have expired to continue as yearly tenants. We trust that the independent tenantry of this country will set their faces against any such retrograde movement as this, no matter by whom it may be attempted to be introduced. In its very nature it is a blow at investment in land by tenants, and also an insidious mode of undermining their independent action, and ought to be resisted as a most dangerous innovation. These are a few of the ideas that we think deserve consideration, but there are no doubt many others that some of my brethren better qualified will in due time bring under your notice.

Mr. WALLACE (Kirklandholm) said some very important points had been brought forward in the Chairman's paper. One of these was the law of hypothec. He believed that mistaken notions in regard to this law existed on the part of both proprietors and tenants. Many on both sides thought it was working for their benefit, whereas it was in reality working to their injury. He had known cases where the tenant thought he was being benefited by his landlord's leniency in allowing him to go on, when it would in reality have been better for him to have left the farm he was in when he had something left to go on with in a place he was better fitted for. The proprietor might think he was doing the tenant a favour, when in reality he was injuring both himself and the tenant. He had a great objection to the system of leaving the bargain for a new lease to the last year of the tack, as he believed it to be a great barrier to improvement. The bargain should take place at least two years before the expiry of the lease. They should endeavour to look at this general subject that had been brought before them, from a landlord's point of view as well as from their own, if they were to expect any advantage from the discussion.

Mr. MURDOCH (Holehouse) said no one who had ever seen a farm lease could have failed to observe that the tenant was bound by every conceivable and inconceivable manner to perform an immense number of certain and uncertain things, and bound, too, with a legal depth and profundity that he perhaps failed entirely to appreciate; while, on the other hand, the clauses binding on the landlord were neither numerous nor stringent. That some sort of written agreement ought to exist, no one doubted, though he had known farms held without any regular lease at all, or even any prescribed rotation of cropping laid down. Notwithstanding this, everything went on smoothly between landlord and tenant during the whole currency of the lease, and the farms, so far from being spoiled, were about the best farmed in the district, though no uniform system of cropping was maintained throughout. Stringent leases might be thought necessary to ensure good management, but there never was a greater mistake. They would no more make a man a good farmer than would Acts of Parliament make a man honest, sober, prudent, or industrious. He would look well to get a man of practical experience and capital, and give him, so to speak, some scope and freedom to adopt any better system he could devise, or that might turn up in this ever-progressing age, or to change his system should circumstances make that necessary—due regard being had at all times not to deteriorate the condition of the farm. A good horse might be rendered comparatively useless by being too much curbed, from a groundless fear that if he was allowed head-room he would run away and throw his precious rider. Let not landlords seem so suspicious of the tenant being a

good man only so far as he was forced; let them trust his honour a little, for he had to trust his landlord's a good deal. Surely to bind a tenant to become his landlord's gamekeeper was as dishonourable to the landlord as it was degrading to the tenant. Let them give a man a chance to develop his skill and energy in following out his profession successfully to the best advantage. Let there be no tight-lacing or Chinese shoe-pinching, which, though done from no bad motive, tended only to deform and cripple natural beauty and usefulness. Since the abolition of the corn-laws, the farmers of this country had had to compete even in the home market against all kinds of foreign agricultural produce. Let them hope the time was not far distant when all restrictive and unnecessary laws, such as the hypothec and game-laws, and also over-binding leases, would be swept away also. All they asked was fair play, and no favour. They were not afraid to face any competition, only they could not do so bound hand and foot.

Mr. STEVENSON (Silverwood) thought farm leases should not be drawn so as to restrict a tenant too much. He should be at liberty to do with his farm, in the way of rotation of crops, as he saw would pay him best—due regard being had to keep the farm up to the proper mark. Some years one crop might do better than others; in other years, again, what might have done well before might do very badly. If a farmer was restricted to a particular crop, he very often was a loser, whereas he might have been a gainer had he been at liberty to alter his mode. Something had been said about some landlord in this district doing away with leases altogether. There was one landlord, he understood, who was not granting leases at the present time, but was just allowing his tenants to go on on their old leases; and as these leases were not at all bad leases, it would not be very much against the tenants. Still he agreed that it was a bad thing to be without a lease, as it did away with the independence of the tenant very much. He could not speak personally as to the game clauses in leases, as there was no game in the district where his farm was situated; but it was no doubt a very bad thing for a tenant to hold a lease under which his crops might be all eaten up by game and rabbits. One could have no idea of the loss sustained in this way.

Mr. WHYTE (East Raws) said this seemed to him to be a more fruitful subject than he had anticipated. A lease was a contract between a proprietor and tenant, and he thought it ought always to be as brief and simple a document as possible, so that each could thoroughly understand how it bore upon him. With regard to fixing a rotation of cropping, he thought in the most of cases that was quite unnecessary. If a proprietor was satisfied as to the skill and ability of the tenant, he ought to grant him a considerable length of lease; and as leases in Scotland generally extended to 19 or 20 years, he thought it would be quite sufficient with a trustworthy tenant to lay down rules for the last four years of the lease. And after the first sixteen years, the tenant ought to have such a knowledge of the farm, and the proprietor ought to have such a knowledge of the tenant, as that both could come to an understanding to enable them to make arrangements for another lease. He thought it was always a desirable thing for both parties that a second arrangement should be made before the first one was completed; it enabled the farmer to manage better, and must keep the proprietor's mind more at rest. With regard to the game laws, it was generally well understood by the tenant on entering upon a lease that it was the law of the country that game had to be preserved. But for a tenant to sign his name to a paper obliging him to maintain an indefinite amount of game, was what he ought not to do. In some cases, he understood, the lease bound the tenant to protect game to an ordinary amount, and provided that, if it increased, he should be entitled to damages, to be settled in case of dispute by arbitration. But he understood it was a difficult thing to get any damages off a landlord. It should be the tenant's look-out to see that he did not bind himself to maintain an indefinite amount of game.

Mr. STEVENSON (Hillhouse) said he had much pleasure in bearing testimony to the practical and valuable paper which had been read by the Chairman. It was well worthy of the careful consideration of all interested in the welfare and prosperity of agriculture, and if its principles were carried out upon the various estates and properties in this county, it would tend to foster and cement that good will and affection so essentially necessary between proprietor and tenant; for in reality



they had but one common interest. It was therefore the interest of the former to give such encouragement to farming as would induce the latter to carry out the necessary improvements, so that in the end both would be benefited. One could not but admire the latitude and liberality which were given by some proprietors and agents in this county to their tenants for the cultivation and improvement of the land. He considered that much of the hardships and difficulties that tenants had to contend with was the result of a too keen competition for farms. When a farm was to let, a great number of candidates presented themselves, and as some had extravagant ideas regarding the productiveness of the land and the profitability of farming, they offered rents which were quite extravagant, and submitted to leases which were quite unsuited to the nature and requirements of the farm; and afterwards, when they obtained possession, they had to submit more to the good-will and generosity of the proprietor than to their own common-sense and prudence. If more care and moderation were bestowed in this matter, there would be less reason to complain of high-rented lands and restrictive leases afterwards. He believed that the system of granting leases to the highest bidder had, more than any other cause, contributed to retard the progress of agriculture in this country, for, wherever land was extravagantly rented, it soon depreciated in condition. The tenant, finding that his capital was being unprofitably expended, and becoming embarrassed in his circumstances, the land thus became exposed to all the consequences of an impolitic and beggarly management. But more enlightened views were beginning to appear and to be acted upon with most judicious effect upon many properties around. There could be no doubt that agriculture in Scotland had prospered under the leasehold principle. Men acquainted with the practice of husbandry knew that the chief profit derived from farming was obtained by a progressive improvement of the land during its various crops and rotations—all of which required a series of years to bring round a fair return for the capital and labour employed. A man in possession of a lease engaged in the effective improvement of his farm, because he had the moral certainty of reaping its benefits during its continuance, and it was therefore a stimulus to spirited improvement. But he could not concur in all that had been stated in regard to yearly tenants, spoken of as adopted on a certain estate in this county. Under some proprietors the tendency might be as described, but upon the estate alluded to it had rather been conducive to the interest and benefit of the tenants, as no rise of rents was demanded, as generally occurred at the renewal of a lease, and they had the same advantages and encouragement given to exercise their judgment and skill in the cultivation of the farm as those who were possessed of leases upon the estate referred to. In England yearly tenancy was the rule, and leases the exception; and, judging from the manner in which it worked there, no danger was to be apprehended, as it seemed to be beneficial to the tenant, both for permanency of occupation and moderation of rent. The rents were considerably cheaper, and tenants much easier in their circumstances, and were as much free agents as the farmers in this county. If the alternative of their present condition and that of a lease were presented to them, the majority of the farmers in England would not desire to change. In granting leases, no one who had studied the subject would deny that restrictions were necessary for the security of the proprietor; but they should be made appropriate to the soil, and as few and simple as possible. While the tenant should be prevented from doing mischief, he should not be fettered so as to bar improvement; for all undue restrictions cramped the enterprising and intelligent farmer, and impeded the progress of agriculture within our land. A most beneficial result would take place if leases were drawn out with judgment and due consideration to the nature of the soil and the requirements of the farm. This demanded no ordinary degree of knowledge, and could only be accomplished by men who were conversant with the details as well as the principles of husbandry. Such leases as were drawn out by legal advisers were often harassing to tenants, because they were inapplicable to the character of the particular farm. Inattention to this proved injurious to many a farm, and brought disappointment and loss of capital to many a good tenant. To a farmer who was known to practise the approved modes of modern husbandry, the management of the land might be entrusted with safety during the greater part of the currency of his lease, for his own interest would teach him

not to misuse it during that period, and it was only towards the close that restrictions were necessary, and when injury might be apprehended. The man who did so diminished his own profits and injured that of the proprietor; therefore leases should be renewed some time previous to their expiry. Were such a conciliatory plan always pursued, and confided to men of marked knowledge, it was inconceivable how much estates might be improved both to owner, the occupier, and the public.

Mr. YOUNG (Kilhenzie) said his experience of farming had been very short, and he probably would not have ventured to speak at all, had it not been for a few remarks of the last speaker. He totally disagreed with that gentleman on the subject of yearly tenancy. He had a strong opinion that the present efficiency of agriculture in Scotland was greatly due to long leases; and he thought the tenantry of Scotland were much indebted to the proprietors for giving them long leases. Nothing could be more calculated to strike at the independence of the tenantry, or to prevent farming being carried on in an efficient manner, than the system of yearly leases. He as a tenant would think twice before he laid out £1,000 or £1,500 on a farm if he had no lease. He might think the word of his landlord good enough so long as he lived; but life was uncertain, and that was sufficient reason why no prudent man would lay out money on the improvement of his farm without a lease. But he thought there were clauses in most leases which would be more honoured in the breach than the observance. To ensure a good understanding between landlord and tenant, it was necessary that leases should be put upon an equitable footing; but many of the clauses in leases at present were not fair, just, or reasonable. For instance, he held that a landlord was as much entitled to take the highest price he could get for his land as they were to take the highest price they could get for their produce; but after taking the highest price for his land, he could scarcely see the fairness of his reserving the right to consume all that grew upon the farm by game and rabbits. They were living in days of change, and he hoped the day was not distant when there would be no such thing as a lease in Scotland requiring a tenant to preserve rabbits. To ask a man to judge as to the increase of game or rabbits was to ask him to do an impossibility. Rabbits were extremely prolific, and he was persuaded that it would be for the benefit of the public, of the tenant, and of the landlord if there were no such clauses as those requiring the preservation of rabbits. As to the law of hypothec, he considered it was a very bad law, and that the sooner it was swept away the better; but the practical grievance from game and rabbits was, in his opinion, greater than from the law of hypothec. Still it was bad enough. There was a clause in many leases prohibiting the tenant from selling straw off the farm. Last year many of them could have sold straw at 1s. a stone, whereas by turning it into farm yard manure it was not worth more to them than 1d. or 1½d. a stone. Clauses like this he held to be detrimental to the interests both of landlords and tenants. There was another matter, which perhaps was scarcely within the scope of the discussion, but to which he might be allowed to refer. It was embodied in the lease, but it was the custom over the most of Ayrshire, that when a man took a farm, arbitrators were appointed to fix as between the outgoing and ingoing tenant the value of repairs needed on offices, &c. Now a case came under his notice recently, in which two gentlemen of great experience and considerable intelligence were appointed arbitrators, and in the exercise of their discretion they allowed 30s. for the repairs needed on some office houses; but when the tenant came to put them in repair, it cost him £20 to do it. The sooner that system was altered the better. The arbitrators ought to decide between the ingoing tenant and his landlord, and not between the ingoing and outgoing tenants.

Mr. THOS. M'CREATH (grain merchant) agreed with Mr. Young and other speakers in regard to the advantages of long leases, and the evils that would arise from the adoption of the system of tenants-at-will. He thought as a rule that leases were too one-sided; that they were drawn up to protect the landlord at the expense of unnecessarily hampering the tenant. There were clauses in some leases that he was sure landlords would be ashamed of if they were brought before the public. For instance, there were restrictions as to the keeping of guns and of dogs, which were not in keeping with the spirit of the

times. With regard to the game question, he believed on some of the largest estates in this county there were clauses in the lease that enabled the proprietor to stock the farm with any quantity of game he might think fit, without the tenant being entitled to one penny of compensation. He maintained that it was unjust and unfair to ask a tenant to sign a document of that kind. He knew it was often said that game would be kept in moderation notwithstanding these clauses, and that no hardship would come to the tenant; but he knew of cases where there had been hardships. Only a few years ago a gentleman with whom he was acquainted re-took his farm at a considerable advance in rent. There was a considerable quantity of rabbits on the farm, and he was told he would be allowed to kill them, but that it was a rule of the estate that the clauses regarding game must be put in the lease. He took the farm on that footing, and in a year or two was told that they had changed their mind, and that the proprietor would undertake to kill the rabbits that the tenant fed. The proprietor accordingly pocketed the value of them, amounting to about £70 or £80 yearly; and the tenant, who as an agriculturist was second to none in the county, felt it to be such a hardship that he gave up his farm. There should be no clauses in leases that could not be carried out in practice. A tenant should not live upon sufferance, but should be in a position to carry on his farm without unnecessary interference on the part of his landlord. In regard to cropping, it was a very absurd thing in a country where systems of agriculture were changing so much as had been the case here for the last number of years, that the tenant should be tied down to a fixed rotation of cropping for nineteen years. This was making the proprietor the manager of the farm, and not the tenant. The tenant should have the management of his farm in his own hand, and the better he managed for himself, the better would it be for the proprietor. He agreed with Mr. Whyte that the clauses in leases should be very brief. He admitted that a proprietor was entitled to protection, but if his farm was managed according to the rules of good husbandry, he did not think he would find much damage done to his land at the end of the lease. Stipulations might be made as to the last four years or so of the lease, but for the first fifteen years the tenant should be left to the freedom of his own will. Restrictions would not make a bad farmer a good tenant; but had made many a good tenant a bad farmer, by obliging him to practise a rotation of cropping not suitable for the land he was working. He was much gratified by the sentiments expressed by Mr. Baird of Cambusdoon at the last dinner of the Ayrshire Agricultural Association. These sentiments, if adopted generally by landlords, would tend much to the success of agriculture in this country. They contrasted very markedly with the ideas expressed not very long since by a proprietor at a meeting of the same Association, who objected to the introduction of portable steam mills, on the ground that the tenant might thrash off all his crop, and run away and not pay his rent. Proprietors were getting now to have more confidence in their tenantry, and the more they did so, the more would they be respected, and the better would agriculture flourish.

Mr. BROWN (Ardneil) might say that neither restrictive leases nor the game laws had ever done him much harm; but he was perfectly satisfied of the evils that would arise from a tenant being tied up to an undue extent. His opinion was that a farmer who had done his best for himself for twelve or fifteen years, was doing his best for the proprietor and for the community at large. He did not think it was right that a man should be tied down by restrictions to any system of farming, as the party making them might not know whether it applied to the farm or not. The tenant ought to know in the course of his practice what system was best suited for his soil: he ought to know what was the best crop to put upon his land, and if one failed he ought to be at liberty to try another. As regarded the no-lease system, he would disapprove of it. It might be that in England the tenants under that system were very well off, and he supposed in Scotland they were very well off too. He believed they might be as kindly treated as the others. It might be that those who had had good leases were continued on the same favourable terms; while those who had had hard bargains would have them still. But, undoubtedly, it took away a tenant's independence. It would not be right to invest £1,600 or £2,000 in a farm without a lease. He did not speak of improvements at all; but it would

not be right for a man to invest money to any amount in his farm when he might have to remove from it in a year. What was the man in such an eventuality to do with his stock, which he would suppose might amount in value to about £2,000? Was it likely that he would get into another farm just at once? He might not, and he might in consequence be exposed to heavy loss. This was the great objection to the no-lease or short-lease system. A good deal had been said about game. It was generally admitted that it was wrong for a man to be bound to protect game to any extent the proprietor liked. He had never himself been hurt by game. He had received damages for injury by rabbits; but a man might be much hurt by rabbits—as, for instance, where his land was almost all in pasture—and not be able to show it. Rabbits were a great evil, and no man should subscribe a lease binding him to preserve them.

Mr. CUNNINGHAME (Shields) said he had heard it said that the subject they were met here to-day to discuss was one which they should not meddle with. On asking the question, Why so? the answer given was, Because it might offend the landlords. Now, he had no patience with those people who were always going about tormenting themselves and others with the silly idea, that if they thought or spoke differently from those who were above them in station, then those people were sure to be offended. He was quite of a different opinion and had no such fear. Of course, as in other classes, so amongst landlords, there were doubtless a few who acted imperiously towards their tenants, allowed them as few opinions of their own as possible, made tools of them in political partisanship, and even prevented them becoming members of such clubs as this. Of such landlords he did not mean to speak further than just to say this, that it was wonderful, nay, passing strange, that they seemed to have little or no difficulty in getting willing slaves to farm their lands, and otherwise back and bow at their bidding. But he was persuaded better things of the bulk of their landed proprietors, and had yet to learn that they did not respect the man who thought, and spoke, and acted, like a man, in an upright, honourable, and conscientious manner, although he might differ from them on many subjects. To make good his assertion he would give a case in point, the truth of which he would vouch for. He knew two farmers who were neighbours (but under different landlords), and they were what was termed Liberals in politics. It so happened at an election time that a proprietor in their neighbourhood was using his influence for the return of the Conservative candidate, and called on both these men to try to induce them to support his Tory friend, and was successful in winning over one of them. Well, it so happened shortly thereafter, that this proprietor and his brother, at their mother's death, required some one to make a valuation of some farm implements and other moveables on the estate, and they agreed to ask one of those two farmers; and which did they fix upon? The one who remained firm and true to his convictions, and voted against them. When his neighbour heard of this, so mortified was he, that he called and expressed his indignation thus: "Well, this beats all: I voted against my mind to please them, and yet they came and took you to do this valuation business." That clearly showed that those people could and did appreciate an upright character, and he concluded therefrom that instead of landlords being displeased at their discussing such questions, they would rather be delighted, if they could in doing so show from their practical knowledge and experience that there were reforms and improvements which, when effected, would prove not only highly beneficial to both their interests, but also to those of the whole community. He would take leave here to say that they had grievances which he verily believed many landlords were in a great measure entirely ignorant of, and why? Just because they had never been brought under their notice. He thought he was justified in saying so, from the statement made by Mr. Baird in his speech at Ayr, viz., that he had only lately been made aware that farmers were so restricted that they could not use their skill or discriminating knowledge as to putting in what they might consider the most suitable crop for a certain kind of soil, but were obliged to act in a kind of mechanical way, and put in such crops as were prescribed in the lease, although they might be the most incongruous. It would be vain in them, then, to expect to be relieved of these grievances, if the parties who alone could grant the needed deliverance were not made acquainted with them.

Now, he supposed this was one of the purposes for which this club was instituted, and he rejoiced at the opportunity of making known their wants thus plainly and publicly, where they might be known and read by all men. With regard to this lease question, they should try to show that the alterations asked for would really be for the advantage of both landlord and tenant (for they could seldom separate the two interests); and he thought there would be little difficulty in doing that. In the first place they were all agreed that the lease system was a good one, for the high position which Scotch agriculturists had attained to in their profession was attributable in a very great measure to their having leases of considerable length. What they wanted now was to improve on that good system and make it better. There was no such thing as standing still in this world; they must either be in a progressive or retrogressive state. Well, it was his humble opinion that Scotch agriculture was at its height under the present system of management; and if it was to progress further, then it must be freed, and that speedily, of all fetters and unnecessary prohibitions, while those engaged in its advancement must have full and free scope afforded them for bringing to bear all the energy and skill which they might have acquired in their theoretical, practical, and scientific researches. And looking abroad into other countries, and seeing the ever and anon increasing competition they had to encounter, and bearing also in mind the ever-increasing expenditure on the working of their farms, they needed helps, not hindrances, to enable them to keep their ground, not to speak of making progress at all. If landlords expected to continue to get the same high rents paid, then they must themselves come boldly to the rescue, and sweep away those feudal enactments in the statute book and those stringent clauses in leases which encumbered and fettered the enterprise of tenants, and prevented them from making a practical application of useful discoveries in the science of agriculture. To prescribe an invariable mode of cropping was just to render the agricultural practices of the farm stationary, to stereotype all the usages and actions of a bygone period, and to prevent the tenant from applying the powers of his mind and body in devising another and better mode of cultivation. If they were still to travel on in the van of agricultural progress, then they must have more elbow-room to enable them to dig deeper, manure heavier, sow more generously, and thus reap more bountifully. With regard to the length of leases, he thought they should not be less than twenty years, for in general to make a farm pay it required a large extra outlay to be made in the first half of the lease in the shape of drainage, cleaning, and extra manuring, so that it took the remaining

ten years to make up the requisite remuneration for former outlays, if the farm was to be kept up in good condition. A lease should be brief, and its clauses few and simple. Of course the landlord should be protected against the deterioration of the subject let; but he thought he would find the best protection in the choice of a good tenant, and giving him full and free action to manage the land as he thought best, without prescribing any fixed rotation of cropping more than this, that there should never be more than a certain breadth of the farm under white crop in any one year—it might be two-thirds, two-fifths, or one-half, as the case might be; and that two white crops should not follow each other, where the land was suitable for green-cropping. He would approve of the farm being brought into a certain rotation during the last four years of the lease. He might here state in passing how a certain unnecessary restriction affected himself. He was prohibited from growing beans as a green crop, and it so happened that the harder and colder portions of the different breaks were unsuitable for the growth of potatoes, so that they had always to be cropped with turnip; and having been turniped every fifth year for a considerable period, the land had become tired for want of change, and the crop always more or less damaged from finger-and-toe and other diseases. Now, he would just ask the question whether the land would be in better order for the following crop after a full crop of beans, well cleaned during their growth and again after being harvested, than after a meagre crop of diseased turnips? He was aware that some farmers believed in reducing the condition of their farms towards the end of their leases, but it was a grand mistake to suppose that a tenant could with profit to himself injure the land. He believed it would be a very nice question to say when one could hold off treating land well without hurting himself; and where one willfully deteriorated a subject, he should be made to pay sweetly for it. On the other hand, where a man improved land, and was obliged to leave it, he should be remunerated for such, as well as unexhausted manures, &c. He thought it would be better for both parties if arrangements were made at least two years before the expiry of the lease whether the tenant was to remain or go; and he agreed with those parties who had already referred to lawyer factors, who had no knowledge of practical agriculture, that they were obstructionists to the promotion of the welfare and best interests of either landlord or tenant.

The CHAIRMAN, in closing the discussion, said he ventured to hope that some little good would come out of it. He thought they had conducted the discussion in such a spirit as to convince the landlords that they had their interest as much at heart as their own.

## OUR TOWNS AND SEWAGE EXPERIMENTALISM.

Not a few of our large manufacturing and commercial towns are sadly bewildered in golden dreams about their sewage. Although day-dreams ought to have nothing to do with the practice of agriculture, yet amateur experimentalists in almost every province of the kingdom are doing their best to make an exception to this desirable rule; and perhaps there is no other branch of the parent art that holds out a more favourable opportunity for day-dreams than sewage farming. To be before the public appears the ruling ambition of the age in every branch of art; and, however unlike the others in many respects the parent one, it bids fair to be in fashion. It is no wonder, therefore, if minds of a thoroughly practical turn feel disposed to think twice before making a jump in the dark. The plain truth of the matter is, that sewage farming is at a discount in the market, the supply being greater than the demand.

The question why the landward demand for town sewage is not greater requires a practical answer. In the immediate neighbourhood of almost all our large towns there are hundreds, and even thousands, of hungry acres, actually starving for the want of food; and yet nine out of every ten farmers in possession of such land will tell you, many of them with the authority of a lifetime's experience, "It won't pay," "It ain't the sort of manure that my lands require," and so on. This and the other successful experiment, let it be performed by an amateur professor mostly engaged in some other branch

of industry, or by a practical farmer who has been in harness from his teens, and whose whole time is devoted, day after day and week after week, in the enterprise, go for nothing in their estimation, physical differences being so many and great as to silence all opposition to the contrary.

However vaguely and imperfectly farmers may express their convictions in such instances, there cannot be a doubt that such convictions are, generally speaking, based upon fact, and that the force of fact will, as it has ever done, carry before it all the argument which science can oppose. Indeed, Science, with all her powers, may just as well think to change the wind by force of speech, as to overthrow the convictions of practical farmers, so long as those convictions are based upon fact—such as diversity of soil, inclination, exposure, and the like. Well-performed experiments all successful and practical farmers can appreciate at their true value. But that appreciation is the very groundwork of their faith—in their own experience, and the capabilities of their own farms—the corner-stone, as it were, of their conviction that, because sewage suits this or that soil, it will not suit their farms, owing to physical and other differences. That artificial management may so change their farms as to adapt them for the successful application of sewage may be granted; but fireside arguments of this kind are, practically speaking, worth something less than nothing; for, until such changes are actually made,

their practical value cannot be estimated by experiment, *i.e.*, they do not reach the convictions of those who base their judgment upon observation or what they see.

In perhaps ninety-nine cases out of every hundred an experiment upon a farm is but a fireside theorem when taken to another farm; and there is little doubt towns will find such fireside theorems to be the greatest stumbling blocks to the profitable disposal of their sewage to successful practical farmers. It is not to be inferred from this that we are estimating fireside farming at one farthing below its real value, or that, indirectly, we aim at shunting it altogether off the line. Quite the contrary; for farmers themselves could not get through the long winter evenings without "much ado about nothing," if we may so express ourselves. It is not fireside farming that does the harm, but the substitution of fireside farming for experimental or practical farming; for all such substitution is a species of quackery in disguise; and therefore our large towns cannot be too much on their guard in listening to the silver tongue of fireside theory.

The really practical question is, how to make the most of successful experiment here and there, without being imposed upon? All successful experiments elicit certain important truths which practical men can fully appreciate. How far this or that town can profit by such truths, in the utilization of its sewage, is another and a very different question; for it would be a hopeless task to attempt the enumeration of such truths, or even to give a tithe of them. No doubt, gab-gifted people may talk fluently of porous soils, gravelly and sandy soils, clays, loams, and so forth, lying at certain inclinations to this or the other point of the compass; but unless they are or have been brought under the eye of the practical farmer, all such talk, to him, is only so much fireside theory. In other words, the question is a comparative one between two practices distinct from each other, two practices which cannot be reduced to a common equality, so that each must be its own rule. In short, apart from the manual question as to the fertilising value of the sewage, and the commercial question as to the value of the produce of the land, each town must be guided by its own peculiar soil, inclination, experience, and so forth, in the application of the truths in question. In the form of an interrogatory: If this or that town or sewage-farm produce certain results, what can another town or farm produce?

The above interrogatory form is perhaps the most instructive way of putting the question, as it illustrates very forcibly the truth of the old, time-tried maxim, "Mind your own affairs if you wish to profit by them." Ap-

ply your own sewage to your own land if you wish to realize its true agricultural value, and let other towns and experimentalists do the same. Profit by any practical lesson you receive, but in making a new spoon take care you do not spoil an old horn. However different farming may be from the various occupations which engage towns-people, few of them can misapprehend the weight of such arguments; for the produce of one farm under a certain course of sewage-management may furnish some idea of what another farm may produce, but the amount of produce yielded by the former ought never in any estimate to be mistaken for that of the latter, and in every case towns should never count their chickens before they are hatched, or disappointments will be experienced. No doubt in carrying out into practice these time-tried maxims an apprentice fee has to be paid. There is no way yet discovered for avoiding this; but this is just the point where one town ought to profit by the experience of those a-head in the utilization of their sewage, if the necessary caution and circumspection be observed, relative to the truths which successful experiment teach, as already noticed in the preceding paragraph. All towns cannot hope to profit equally from any one successful experiment or practice, owing to diversity of physical and other circumstances, so that different experiments and practices have to be investigated with the view of profiting by what each may teach; and the instruction thus afforded may as often be of a negative character as to what should be avoided, as of a positive character, relative to what may be adopted with promise. Practical farmers are perhaps more familiar with the negative rule than the positive one, and towns will do well to profit by their experience in this respect.

The sewage proposition of each individual town in the kingdom requires thus to be seen and examined in its own light, so that the utilization of the whole of the town sewage in the kingdom forms a comprehensive subject. And as it is the individual cases that constitute the whole, the prudent, and, indeed, the only practical and successful courses is to discuss the former, prior to entering upon the latter. Those who reverse this order of investigation put the cart before the horses. Towns are sadly overlooking the force of this argument. What has the metropolis to do with the farming of the Edinburgh sewage? or the town of Montrose to do with the farming of the sewage of Croydon? and so on for other towns which we could mention, each being engaged in discussing the farming of the other's sewage, instead of farming its own. Until this adverse rule is set aside, and the opposite one enforced, little progress can be expected in the solution of the general question. X. Y. Z.

## ARTIFICIAL MANURES—CHEAP AND BAD.

At the last meeting of the North Durham Chamber of Agriculture, Mr. GILLART, of Wynyard Park, drew attention to a very important matter, in order that it might hereafter be fully discussed. There were two ways of dealing with the question. One was by bringing prominently before the minds of farmers the great practical advantages which the application of chemistry to the cultivation of the soil was calculated to bring about. This was to be achieved by employing practical chemists to give lectures in the towns and villages of the district in which the chamber was established. This, however, would be a costly mode of introducing the subject, and one which at present the chamber would scarcely be justified in incurring. Another and very practical mode of giving to farmers the benefits of chemical science would be to institute arrangements for the analysis of artificial manures. The chemical constituents of artificial manures were not sufficiently understood by those who purchased them, and much loss and disappointment frequently arose from the want of this knowledge. Very often farmers were tempted to buy cheap or rather low-priced manures, and the crops not turning out what they anticipated, they became discouraged, and perhaps in future were led to depreciate and under-value all artificial manures. This was a double mistake; it was an error in the first instance to purchase without a knowledge of its chemical constituents a manure apparently cheap, but really dear, and it was wrong to suppose that all artificial manures were equally

unreliable. There were in the market some excellent artificial manures, and there were others which were downright impositions. Unfortunately the least informed and the poorest farmers were generally the victims of those who manufactured and sold these worthless preparations, and it was the more humble class of agriculturists that he desired the North Durham Chamber of Agriculture should endeavour to devise means for protecting from fraud. The better class of farmers, from their more extended knowledge and information, were able to take care of themselves; but the small farmers were those who chiefly suffered by spurious preparations such as those to which he referred. He could mention numerous cases where men had been imposed upon, but he would adduce a single instance by way of illustration. A person wanted a respectable dealer in guano to supply him with the best Peruvian for £13 10s. He stated that he could not do so, that the article could not be bought in the market under £13, and if he was not satisfied he could try somebody else. The farmer purchased a lower priced article, but he was very much dissatisfied with the results, and on a sample of his purchase being afterwards analyzed, it was found not to be genuine, and was not worth more than £8. In fact, he had been imposed upon by a spurious article; he lost his money in the first instance by paying a high price for a poor article, and in the second by the inferiority of his crop. Discouragements such as these, and want of

knowledge as to the causes from whence the failures proceeded, naturally excited a prejudice against artificial manures, and in the end there was a very serious check on the progress of agriculture. In a poor county like Durham, where the land was not naturally very productive, artificial manures were particularly requisite, and it was of the more importance therefore that they should have confidence in what they purchased. Many people, unfortunately, from want of due thought, bought from parties of no standing whatever; and then, getting disappointed, they became less and less enterprising, and poor farms got poorer still. It was of immense benefit to know what were the right ingredients to apply to land. The dissemination of knowledge on the principles of chemistry as applicable to agriculture could perhaps be the most successfully effected by lectures, but there could be no question that analyses such as he suggested would be of great practical utility. Perhaps they could not go so far at present as to undertake the analysis of soils, but he thought they might for a very moderate outlay undertake to employ an analytical chemist to test the fertilising properties of artificial manures. In the present day, in farming, as in all other businesses, competition was very strong, and farmers could ill afford to waste their money in the purchase of stuff which was of no value. He did not wish to hurry them to any decision on the subject that day, but he thought it a very proper subject for the consideration of a chamber of agriculture. Should the Chamber, after the subject had been fully considered, appoint a chemist to conduct analyses such as he referred to, no doubt it would be of great service to farmers and to agriculture in general.

Mr. T. WEARMOUTH said he hardly thought the Chamber should be at the cost of protecting those who were so foolish as to expend their money in these low-priced manures. If they went to a respectable agent they would get an analysis, and a guarantee that the manure supplied should be like the sample. He was surprised that men should be so foolish as to purchase the low-priced blood manures, and the mere sweepings and dirt which were sold for artificial manures now-a-days. If they went to a good man for guano, and to another for bones, they would get a good article without an analysis. Cockle-shells and oyster-shells were very largely mixed with some of these manures, and he had for years thrown away £20 a year in purchasing such rubbish for genuine manure (laughter). He had given up the oyster-shells now, for he found that guano and half-inch bones were far more profitable (laughter). A lot of the artificial manure now sold was dirty rubbish, against which common-sense should guard them. They wanted no protection against such stuff as that.

Mr. HOLMES: It appears you required it when you bought oyster-shells (laughter).

Mr. GILLART said it was against the practices of men who had not established reputations as manure-dealers that it was so desirable to guard the poor man. By plausible pretences they imposed upon poor farmers who had no means of testing the value of the articles in which they dealt. The object of an association like the North Durham Chamber of Agriculture should be to encourage dealers who sold the best manures, and those who sold the worst they should endeavour to wipe out. If farmers had the means of testing the qualities of manures by the aid of an experienced chemist, dishonest dealers would be deterred from practices so dishonourable as those referred to.

The CHAIRMAN said the subject introduced by Mr. Gillart was one of very considerable importance. The great difficulty was to get a certain class of farmers to understand the difference between low-priced and cheap articles. They were apt to think more about saving, as they thought, a few shillings, than they were about buying a first-rate article, the purity of which was known. They don't think that the value of a manure consists in the ingredients of it, and they will thus buy a low-priced rather than a superior article. The best way of course was to have a fair sample from the bulk, and to have it analyzed before it was tried. A great many parties, however, did not think of purchasing their manure before they wanted to use it, and there was not then time to analyze it. The only protection against fraud in such cases was to deal with large and honourable firms, whose interest it was to supply the best article they possibly could. Their profits depended upon showing that their manure was better than their neighbours'. It would be a good plan to get farmers to retain samples of their manures, so that actions could be brought against parties

who sold manures which were comparatively worthless. In Scotland penalties had been recovered from parties who had sold useless compounds for manures.

Mr. WEARMOUTH said he thought the evil would cure itself in time.

The CHAIRMAN said in the case he referred to, the man lost his whole crop of turnips, and he recovered substantial damages.

Mr. WEARMOUTH said the price of Peruvian guano was so well known, that anybody purchasing an article for less than that sum must know it was not pure.

Mr. JOHN FURNEIS said they all knew the price of good Peruvian guano, but there were other artificial manures manufactured which in some measure came into competition with it, and encouragement of those who made good manures of this description might bring down the price of guano. Their object should be not only to put down those who sold an inferior article, but to encourage those who produced a good one.

Mr. WATSON said if the benefits of analysis, such as had been recommended, were confined to the members of their association he thought Mr. Gillart's project could be carried out. The idea was a very practical one, and much good might be effected. An instance came before him not long ago, in the way of business, where a farmer near Lancaster bought some guano or artificial manure, which was represented to be of very excellent quality. He tried it, and it turned out to be almost worthless. Fortunately, he retained a sample from the bulk, and he (Mr. Watson), on being consulted on the subject, sent the sample to an eminent chemist in Newcastle for analysis. That analysis he would bring with him to the next meeting of the Chamber. He might state, however, that the analysis fully confirmed the farmer's suspicions that he had been imposed upon, inasmuch as he had received for £10 10s. a ton an article the outside value of which was £3 10s. a ton. If that Chamber could protect its members from such impositions, he was sure that it would confer a very great practical benefit; and he thought Mr. Gillart was entitled to their thanks for having brought such a very proper subject before the meeting.

Mr. WEARMOUTH said he quite agreed with Mr. Furneis that it would be very desirable to encourage the manufacturers of good artificial manures; but the idea of buying pure guano at £10 10s. a ton was ridiculous.

Mr. WATSON said every man should retain a sample of his manure.

The CHAIRMAN asked Mr. Watson what damages were recovered in the case he had referred to.

Mr. WATSON said an action was brought against his client to recover the value of the manure. A small sum was paid into court, and the manure dealer recovered a little more than that, but nothing like the sum charged for the guano.

The CHAIRMAN said Mr. Watson's client lost his crop, which was of a very great importance. Had he brought an action to recover damages, he believed, from the case which had been decided in Scotland, that he would have been successful.

Mr. WATSON said the question of damages did not arise.

The CHAIRMAN said that was made the material question in Scotland, and penalties were recovered.

Mr. HEWITSON said he believed the Highland Society had for a number of years undertaken to analyze samples of manure.

The CHAIRMAN said he believed they contracted for these things.

Mr. FURNEIS said the Royal Society had a sliding scale of charges for analyses, charging so much for analyzing guano, and so much for analyzing soil.

The CHAIRMAN said such an analysis as they required would not be a very costly one. They wanted to know the quantity of fertilizing properties the guano contained. They did not wish to learn with precise accuracy the whole of the ingredients.

Mr. WHARHAM said he had had some conversation with Mr. George Shaw on this very subject, and Mr. Shaw had communicated with an eminent chemist in Newcastle, and had procured from him a scale of charges for quantitative and qualitative analyses. He was sorry Mr. Shaw was not present, as

he would have been able to give the chamber some useful information.

Mr. GILLART said it was not a question which he wished to hurry on at all: even the ventilation of such a subject might be useful.

The CHAIRMAN said anything they might do in the way suggested should be confined to the members of the chamber, and there would thus be an additional inducement to farmers to band themselves together in an association of that character.

Mr. WATSON said the funds of the Chamber would not

permit them to pay the cost of analyzing manures purchased by those who were not members of the Chamber.

Mr. HOLMES said he and Mr. George Crofton once had a joint investment in an "Economical" manure, and it was so economical that neither of them ever got a turnip (laughter).

Mr. GILLART hoped the time had not been expended uselessly in discussing a subject which he had introduced without sufficient notice; but he thought it would be better to reserve for future consideration the steps which the Chamber would take in reference to it.

## A DAIRY FARM IN AUSTRALIA.

The estate of Bodalla, consisting of about 14,000 acres, is situated upon the Turoos River, about 200 miles south of Sydney (the river runs through the centre of the property, a length of nearly twelve miles). It consists of rich alluvial flats, nearly free from timber, backed up by gentle undulations, terminating in hills, with high mountains to the north. The timber on the river consists chiefly of mahogany and oak, and on the hills and ridges of blackbutt, box, and apple tree. The extent of the property at present cultivated consists of about 2,000 acres, of which quantity Mr. Mort farms 500 acres; the remainder is let to tenants. On each of the farms comfortable cottages, yards, milking bails, &c., have been erected by the proprietor, who also supplies each tenant with a requisite number of milking cows. The rent they pay is three days' milk a-week, which is delivered at the homestead: there are certain conditions as to the rearing of pigs, &c. As this arrangement has only been in existence for a short time, I cannot say how it will answer, but to my mind a handsome competence must be the consequence. In no part of the world could more favourable terms be granted. With a liberal minded landlord, comfortable homes and appliances, high-class milking cows, rich English grasses, good prices for their produce, and with almost a nominal rental, if non-success follows the fault must be the tenants'. I regret to say some of the farms visited were not kept in that tidy order in which I am sure they must have been handed over.

I wish particularly to describe Comerang, the home station, farmed under Mr. Mort's supervision, and on which the celebrated Bodalla cheese is made. It consists of 250 acres of the river flats, surrounding the house, fenced into four paddocks. The land is laid down into prairie, cocksfoot, rye, timothy, meadow, fescue, alsace, and clovers (more valuable grasses are now being cultivated). The paddocks are thoroughly drained by box culverts (quite works of engineering skill); each paddock has separate watering places, independent of the river. I cannot describe in too glowing terms the richness and verdure of the fields, more resembling the meadow lands of our best English counties. During my stay, ninety-one cows were milked twice a day (take 11th December), and gave 190 gallons of milk, giving 228lb. of green cheese. The cheeses are kept for four months before being sent to the market. A fortnightly supply is regularly kept up. The cheeses run from 20lb. to 110lb. I ought to mention here that no cheese is made on Sundays, but that day's milk is made into butter on the Tuesday. The dairy and cheese-making is under the care of Miss Lillias McLean (of long experience with Messrs. Hervey, of Glasgow), whose constant aim and pride is to keep up the well-merited character of the Bodalla brand, and who seems, judging from the state of her dairy, cheese-room, &c., to consider "cleanliness next to godliness." The milking-shed and bails are the most complete I have seen. They consist of four rows of bails, shingled over and slabbed, eighty in number. Each cow is bailed up in her own stall. By a convenient arrangement of ropes and pulleys, it is unnecessary to go up to the head to bail and unbail. A crib is fixed before each, filled with green stuff, on which she quietly feeds during the milking. The cows are not unbailed until the last one is milked. A man precedes the milkers (six in number), who leg-ropes and washes the udders of each cow. A head-man follows, whose duty it is to strip the cows, thus causing a check upon the milking. Silence is strictly enforced during

the time. The milk is poured into buckets placed upon a car, and run by a wooden train direct into the dairy. Although only ninety-one cows are now being grazed upon the 250 acres of Comerang, the manager informs me (and of this I feel assured, judging from the quantity of grass after four months' drought) he could easily carry, and carry well, a cow to two acres. The cows do not seem of any particular breed. The Durham appear to be the foundation of the herd, and now crossed by the Ayrshire; but the main rule is "milking" quantity and quality, and constant culling. The calves are taken from the cows immediately after calving, and fed twice a day on whey. During the day they run in a well-grassed paddock, and are housed at night in well-ventilated but warm buildings, with boarded floors, troughs, and hay-racks.

The pigs on Comerang (about 200) are the finest I ever saw, being the Prince Albert and Berkshire. The sows are drafted a few days prior to farrowing into well-arranged separate sties. They are allowed a couple of hours' run daily in a small paddock, into which all the sties open by a narrow lane. For six weeks they are fed on maize, whey, &c., when they are turned with their young into a large grassed and well-watered paddock with the general herd, where they get 2lb. maize daily (a bushel per month), which keeps them in high condition. It seems to me Mr. Mort favours the Prince Albert, although he considers the cross with the Berkshire the best for store purposes.

A small flock of Lincoln sheep are also kept. I do not think, for length of staple, good combing qualities, weight of wool, points, and rapid maturity of carcase, they can be surpassed. They kill wethers of fourteen months old regularly, weighing 48lbs., and a lamb I saw killed, of four months old, weighing 48lbs.

The whole farm management seems by the arrangements to aim at economy of labour. Improved machinery, superior buildings, tramways, steaming apparatus, stables, sheds, &c., all these, combined with the comfortable cottages for the labourers, give an exhilarating English air to the homestead, breathing of health and contentment.

The climate is truly English. I can only account for this by the quantity of water upon and running through the property, and consequently heavy dews. These dews are increased by keeping the paddocks well covered with grass, thus attracting the moisture and acting as conductors to the roots. Much of the verdure exhibited after a four months' drought must be the result of a careful appropriation of the dews, amounting, at Mr. Mort's estimate, to about one-sixth of the yearly rainfall. Therefore the maxim enforced especially at Bodalla, "keep the grass at a good bite," is one which they have no difficulty in complying with at present; while at the same time it is equally insisted upon that the grass should not be allowed to get too long and rank, as a flood would be the death to it in that condition. In that case it is apt to get laid and rot before the water runs off.

The present system on Bodalla seems to be only to lay out the current profits in progressive improvements, of clearing and laying down in English grasses. When the 4,000 acres are thus laid down it will indeed be a princely property.

Mr. Mort is only what he calls "roughing" the land into grass at present, as he intends, by degrees, to cultivate the land to a depth of 18 inches, which, with thorough drainage and judicious feeding, will, he considers, enable him to carry a cow to the acre all the year round, but without these the land

is comparatively worthless. I would here mention that Mr. Mort considers he has to outlay £10 an acre upon these rich flats in order to yield a profitable return. This cost includes, of course, draining, fencing, cultivating, and seeding as well as the necessary buildings for carrying out his system of farming; but this only shows that labour without capital can no more prosper than capital without labour. Suppose this outlay of £10 an acre yield grass for one cow to two acres, and suppose the cost of the land be £5 an acre (for it must be remembered Mr. Mort had to pay Government a large sum for worthless land to get 4,000 acres of good land), it requires to feed a cow an outlay of £30; this cow yields daily 1½ lb. of selling cheese at 8d. per lb., thus making £18 a year; take from this for expenses of milking, keeping land, fences, &c., in order, say £5 a year, and there is a return of £13 10s. an acre per annum. Could this be done on a small scale and without capital? Certainly not. If so, why is it the free selector on the rich blocks, which many of them hold, scarce makes an existence? The Government ought to find the money to farm with, as well as the land to be farmed, if they will have free selection.

The above calculations are mostly made from conversations

I had with Mr. Mort. I will now give my idea of what may be done with 4,000 such acres, based upon the return of ninety-one cows now farmed a Comerang. 4,000 acres will carry say 1,500 cows giving say 2,500 gallons milk per day, making say 18,000 lb. of cheese weekly, sold at 8d., or £800 per week, or £28,000 a-year! To this must be added the profits of some 2,000 pigs, and 1,200 calves which have the uncultivated part of the estate, some 10,000 acres, to run over. I believe £400 per 100 cows yearly is quite sufficient and ample for the expenses—say for the management of 1,500 cows, £6,000 per annum.

I am well aware the above large return, arising from so apparently small a source, will cause a smile of ridicule and doubt when some of my fellow-colonists peruse this, and more especially emanating from an old squatter, who is not supposed to know any of the minutiae or routine of a dairy farm. I do admit much ignorance on the subject, so far as my previous pursuits are concerned; but I plead in apology that my statement and remarks have been made from facts, strict personal observation, and the well-tryed experience of the proprietor's very superior manager, Mr. Champneys, to whom I am indebted for much valuable information.—*The Australian*.

## AUTUMN WORK.

Autumn is the farmer's busiest season, being rendered particularly so on account of the in-gathering of the crops then taking place, the sowing and culture of which occupied his attention during the months of spring and summer. Although this is the most important business requiring attention, still there are many other things, which, if attended to, and performed now, will, by-and-bye, richly repay him who had the energy and foresight to make an effort to get them completed. These operations include the sowing of forage crops, which will come in for use at an early period of the following year, supplementing the root crops, and either keeping the cattle wholly off the pastures until well covered and a full bite can be obtained, or partially doing so, and also permitting a much larger stock to be kept than could otherwise be done, if these crops were not provided. The next set of operations which may at this time with great propriety be performed are those which have for their object the cleaning and working of the land in preparation for future crops, thus lessening the spring work; and while actually doing it to better purpose, and much more economically, the farmer is in a great measure rendered independent of the weather in spring, his attention being then mainly directed to the getting-in of the seed, the heaviest portion of the preparatory work being done.

These various operations now absolutely forcing themselves on the notice of the agriculturist, we propose shortly reviewing the best modes of management as practised at the present day, the best, although probably involving a little more outlay in the beginning, being invariably the cheapest in the end, production being increased, more money made in consequence, and the farmer's interests generally advanced.

The summer of 1868 having been so unusually dry and warm, the severance of the corn has already in a great measure been effected; and farmers, instead of being busy with scythe and machine, as is usually the case in the month of August, have their attention altogether directed to the securing of the crop. The high price of fodder, and the almost certainty of its being yet much higher, ought to be a great inducement to every farmer to take more than usual care in having his corn saved in the best possible order, so that the straw will be sweet and wholesome, and capable of being used with good results as food for stock during the coming winter.

There can scarcely be a doubt that in very many districts stock-owners will be put to great straits in providing food to keep the animals on, even in middling store condition, until relieved by the growth of grass in spring; and also that with hay and turnips either altogether wanting, or available only in very small quantity, straw must be the principal dependence. The researches of science, and the practical experience of many of our most eminent agriculturists, have of late years demonstrated the important position straw takes in the foldyard as food for cattle, and not for them alone, but

for horses and sheep in an almost equal degree. The results obtained from it are not less satisfactory when substituted for hay, either wholly or in part, for fattening stock, or when used either by itself, or with the addition of a small quantity of turnips in the feeding of stores. To preserve the straw sweet, and in such condition generally as will ensure its adaptability for cattle food, it is highly essential that if at all possible, the corn should be cut while slightly tinged with green, and afterwards allowed sufficient time in the fields under the influence of the sun and wind to become thoroughly matured. The straw of corn that has been put together too suddenly is scarcely ever fit for anything but litter, as, if not positively heated, it seldom fails to contract a mustiness of smell and flavour, highly disagreeable to the animals, and causing them to reject it as food, unless forced to consume it by actual starvation. From a week to ten days in the stook, even in the best of seasons, is necessary for the proper maturing of both straw and corn, and if grass, clover, or weeds of any succulent kind is present, a more lengthened period must be given. Stooks when carefully made are wonderfully safe, standing a great deal of bad weather without injury if kept straight. In the case of oats, a wetting and the subsequent evaporation are highly conducive to that state of crispness so indicative of good condition, both of corn and straw. Once in proper condition for removal to the stack-yard, every opportunity should be embraced for getting it conveyed there-to, the hands employed being encouraged by a little extra or better food, and increased pay to work on till dark, and even by moonlight when it answers, so as to make the most of every favourable turn in the weather. There is so little danger of wheat heating, that it may be put into stacks of any size without using the precaution of hollow centres, or horizontal flues, assuming, of course, that a reasonable time has elapsed between the cutting and the stacking, and that the sheaves are exactly as they ought to be when carried. Barley is the most liable to injury of all the cereals, and the utmost caution should be used in saving the crop, both in the field and stack-yard, so as to secure the highest price for the season, by having the grain in colour, weight, and general condition, fit for the brewer. The smaller the stacks in this instance the better it is in most years for the corn; and however small they may be, to make assurance doubly sure it is desirable to have a centre shaft running up at least to the eave of the stack, communicating with the external air by means of a horizontal shoring. It is an unpleasant thing to see a stack steaming, the more so as it generally is the result of undue haste, or, in other words, the neglect of the simplest precautions for the safety of an extremely perishable property, and there are but few seasons in which corn may not be saved without the slightest injury, providing the weather is patiently waited on, and preservative measures are attended to. Oats for



meal purposes must be very carefully managed, both by permitting the crop to mature properly in the field, and by stacking carefully when carried. The slightest mustiness is fatal to its being profitably disposed of as food for man, and it must necessarily be sold for other purposes at a considerable reduction in price. When meal is not an object, the same care in ventilation need not be observed; as, if in good condition when brought in, there will not be the slightest danger in building on an ordinary saddle of iron or stone, standing a moderate distance from the ground, and permitting a free circulation underneath. It is very desirable to have the stack-yard in an airy position, where it can be searched by every wind that blows, the stacks penetrated, and every particle of moisture licked-up. There are too few conveniences about most farm-steadings for the purposes of shelter during a break in the weather; in fact, there is a good deal left to mere chance, and considerable injury is often done by heavy rains beating in on the heads of the stacks before it is possible to get them thatched and made snug and tight for the winter. We often read of the propriety of having covered dung-hills, and the immense benefits that accrue to the farmers therefrom; but we seldom hear a word about the necessity of a covered stack-yard, notwithstanding the saving that would be effected by such a thing. The expense of thatching hay-ricks and corn-stacks each year amounts to a very considerable sum, not to take into account injury from bad weather which occasionally helps to raise the amount; but never being calculated there is but little importance attached to it, the temporary inconvenience and annoyance being all that is noticed, and that too is forgotten when the weather takes up again and the work is resumed. When caught in the very middle of in-gathering with a storm of wind and rain, which lasted probably ten days or a fortnight, we have often most earnestly wished that we had a covered stack-yard, so that what was in would at least be safe, and ourselves spared the misery of looking upon the drenched stacks that have cost so much trouble to get built-up dry, and which were viewed with such satisfaction when finished.

About twenty-two years ago, when the duty was taken off glass, there was much discussion about the applicability of that material for economical structures in connection with the farm and garden, and the useful results that were likely to be realized from its extended use. Now, although for horticultural purposes the use of glass has greatly extended since that time, some large establishments owning acres of it, we do not find that it has been utilized in agricultural buildings to any appreciable extent. A covered-in homestead would be a great boon, and surely amongst gentlemen-farmers more particularly, with whom money is often so plentiful as to keep them constantly on the look-out for paying investments, a range of parallel shedding, roofed on the ridge-and-furrow system, supported on cast-iron pillars and covered with glass and slate, would confer so many advantages on its possessor and prove so generally useful as to pay a fair interest on the outlay.

The corn all in and secured, the farmer again turns his attention to the fields, and at this time of year, and this season above all others for many years past, he can scarcely employ his men and horses to better purpose than in preparing the land for those crops of early habit and rapid growth that will come in for food in early spring, and getting them sown as quickly as possible. The first we shall notice as useful for this purpose is the winter tare or vetch, a plant of undoubted usefulness, and which we conceive richly deserves a much greater amount of attention from the British farmer than it actually receives. When properly treated, an acre of vetches yields an immense amount of succulent and nourishing food, the animals fed on it not only thriving, but actually fattening; all are alike fond of it, and however green and succulent it may be when placed before them, there is not the slightest danger of accident from hoven. On the other hand when sown on poor land without a considerable dressing of manure, the crop is really not worth the trouble of cutting, and seed, labour, time and prospective benefits are all lost. On farms where a good deal of clover, tares, and rye-grass for successional cuttings during the summer is grown, and a partial system of house-feeding carried out, there is now a fine heap of rich manure, which comes in exceedingly handy for this crop, as the more juicy the dung, and the thicker it is applied, the better will be the crop, and the earlier will it be ready for cutting. Sown any time between this and the middle of September it may almost

be calculated on to come in by the last week in April. In the southern counties successional sowings may be continued until the beginning of November, if the weather permits, with every prospect of their doing quite as well as those previously sown, but preserving the greenness so much prized until a later period of the summer. A little rye or tawny oats mixed with the seed assists to some extent in keeping the crop off the ground, but it is also useful, and that in a more eminent degree, as shelter during the winter months and early spring, the vetch suffering considerably from severe frosts and cold biting winds. *Trifolium incarnatum*, long known in these islands, but comparatively little used when its usefulness is taken into consideration, is for its earliness, feeding quality, and excellence as a cropper, well worthy of a place on every farm where an early bite is a consideration. Its culture costs but little, the stubbles being merely scratched with the harrows to redden the surface sufficiently to form a seed-bed: the seed is sown, rolled in, and the operation is finished. It affords only one cutting, but being cleared early the land can be manured and seeded with swedes or other root crops at once, and a valuable forage crop is thus obtained, without the ordinary rotation on which the farm is worked being interfered with. This plant has one advantage over the vetch for very early feeding, as it may be given to stall-fed cattle when the roots run short, and lowness of price or other reason makes it desirable to hold them on, without running through them and inducing that softness of flesh which excessively green vetches may possibly do when given to cattle in a forward state. Italian rye-grass sown now on a clean field in good manurial condition makes great plenty for soiling every kind of stock during early summer, and if facilities can be had for irrigation or flushing with sewage, the crop is not only early, but affords several heavy cuttings. However, the majority of farmers must trust more to solid than to liquid manure, and there can scarcely be a doubt but that in the end it pays best. The enormous outlay required in laying down pipes and fixing hydrants will ever prevent the system of irrigating with liquid manure from extending, and also make the remuneration at best uncertain to those who have given the system a trial. Simultaneously with these operations now described the cleaning of the stubbles and the working of the soil for next season's green crop require to be attended to, and the sooner the better, as if done while the sun is still powerful the cleaning can be done so completely that not a root of weed need be left alive. The implements for this purpose are now numerous, all good, but still some of them better than others, as the judges' award at Leicester for improved paring grubbers and cultivators amply testifies, and no farmer looking out for a grubber with shares adapted for autumn cleaning will go wrong in purchasing the implement there awarded first honours. The working of the land in autumn is great economy and excellent husbandry, and no other business however urgent should be permitted to interfere with its thorough performance. During the spring of the present year we saw a great deal of couch burning on turnip land, a circumstance that surprised us much, as the presence of couch in such quantity is quite unworthy of the agriculture of the 19th century, as when the land is gone over with the proper implement in autumn, or even with a common plough, with paring sock attached, which does very well for small occupations, not even a thread of couch need be seen when the time of sowing arrives. Another valuable feature of autumn working is the freshness of the land for the reception of the seed, a condition very difficult of attainment when the soil has to be turned over and over under a burning sun, for the purpose of getting rid of the roots of noxious weeds with which the land may be infested.

J. S.

**BANBURY SEWAGE FARM.**—The Board of Health had, previous to 1867, turned the sewage of Banbury into the river Cherwell, where it became a nuisance to farmers and millers, and even to the inhabitants themselves. Litigation followed. The law courts decided against the board, and the latter, after much expense, which fell upon the ratepayers, determined to rent about 135 acres of land, a mile from the town, and to run the sewage over it before allowing it to flow into the river. The necessary apparatus, including pipes, tanks, and a pumping engine, had been duly prepared, and

operations were commenced for irrigating a considerable portion of the land with the valuable liquid. Owing to a defect in the engine, which has since been remedied, continuous pumping could not be carried on during the winter months, which were highly favourable for irrigating purposes. February had nearly elapsed before the sewage could be systematically applied. It may be mentioned that three fields, comprising in the whole about 35 acres, had been sown with Italian rye-grass. The remainder of the farm (with the exception of 18 acres, which have just produced an excellent crop of oats, realising £198 by public auction) was mowing grass. The land, it may be stated, had been well drained and manured before it came into possession of the board, but the portions of it under rye-grass were overrun with weeds. Notwithstanding these and other drawbacks which attended the commencement of this irrigation scheme, the results have so far been highly satisfactory. The board pay £4 10s. an acre, and during the winter proposed to sublet the farm to the highest bidder. No tender was accepted, and on the 5th of May rather more than 11 acres of rye-grass, a light crop, for the reasons already mentioned, fetched only £15 2s. A second crop off the same field, sold on the 19th of June, realised £81 15s. A third crop will be disposed of in a few days, which, owing to the dry weather, will produce a good round sum, greatly to the relief of the ratepayers. The sales of rye-grass grown on 35 acres have, up to the 24th of July, produced £379 4s., being at the rate of £10 16s. 8d. per acre; and it must be remembered that a third and other crops are forthcoming. The total amount received from the sales of rye-grass, mowing grass, lattermath, and oats up to the 24th of July has been £997 16s. The greater part of the mowing grass was subjected to irrigation, and where this was thoroughly done the produce has been more than double that on the adjoining meadows. The lattermath exhibits similar satisfactory results, and portions of it may be mown and made into hay. Experience here has shown that the drainage of the land is not favourable to irrigation by sewage. The liquid percolates too soon into the pipes, and may thus flow into the nearest brook without leaving on the surface those fertilising ingredients which stimulate the growth of plants. In levelling land for irrigation it is of the utmost importance that the fertile soil on the tops and sides of the ridges should not all be cast into the furrows, as was unfortunately to a great extent done on the Banbury farm. A practical man acquainted with the water-meadow system so general in many of our English counties would be found a useful person to any local authority desirous of preparing a farm for sewage irrigation. The results of the disposal of the liquid portion of the excreta of the inhabitants of Banbury (the solid matter is detained in settling tanks, and sold, mixed with ashes and street-sweepings), are as follow: The Cherwell is not polluted, and no cause of offence is now given to farmers, millers, and landowners who formerly complained of a serious nuisance. Fish in the stream increase and multiply. The valuable refuse of more than 10,000 people is turned to profitable account, and a certain portion of land has more than doubled its produce. The ratepayers begin to feel easy in their minds, and at last see an end to a state of things which at one time threatened endless litigation and expense. The growth of the crops has been watched with the greatest interest. The predictions of failure were numerous and persistent, but Banbury sewage vindicated its potent qualities by its results. The public sales of produce have from time to time been attended by increased numbers of eager purchasers, and farmers, dairymen and others have been greatly benefited by the facilities thus afforded of obtaining, even at high prices, large quantities of keep for their cattle. The contrast between the fields of the sewage farm, where grass may be seen a yard and a-half high, and those of the surrounding neighbourhood, which unfortunately are bare, brown, and dusty, is very striking and is remarked upon by all visitors. Owing to the absorbing power of the soil and the loss caused by evaporation, it may be mentioned that hardly a drop of liquid has, during the last six weeks, notwithstanding the immense quantity pumped on to the land, found its way into the river. There may be other ways of dealing effectually with town sewage, but the irrigation scheme, as now in operation at Banbury, is surely a great improvement on the barbarous systems so generally practised of turning it into rivers or thrusting it into the sea.

## THINNING ROOT CROPS.

An obvious truth is often better enforced by a simple engraving than even by experience. Year after year men culti-

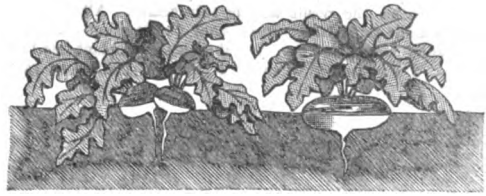


Fig. 1.—UNTHINNED.

THINNED.

vate turnips broadcast, using too much seed, and never thinning out the crowded plants. Turnips almost always do much better sown in drills than broadcast, and if "mercilessly thinned" in the rows, so be it the ground is occupied, the difference in the crop is very great. This fact we have endeavoured to exhibit, so that

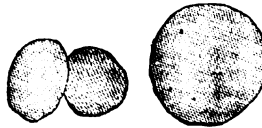


Fig. 2.

alone, and two close together. Fig. 2 is a horizontal section, showing still better the great difference between thinned and unthinned roots.

**CULTIVATION OF THE POTATO.**—Notwithstanding the peculiar adaptation of the soil and climate of a large portion of this country to the production of the potato, there is still an inadequate supply grown to meet the wants of our own people, as their present scarcity and high price bear witness. Good eating potatoes, at this time (April 25th), readily command 2 dollars per bushel in our markets, and many are unable to obtain them at this price. The average price of potatoes for the last twenty years, in thickly-peopled sections, has exceeded the price of corn, although every practical farmer knows the cost of production to be much less. It is unnecessary to enter into a minute exposition of potato culture, to demonstrate its profitability. Every intelligent farmer will readily admit that no general crop will pay him better, when it escapes disease, and when he enjoys the facilities of convenient markets. Yet, with these facts in view, farmers fail to grow them sufficiently plentiful to supply the home demand. Every householder living in large towns or cities has often experienced the impossibility of always supplying the table with this favourite esculent. It is true, in seasons of abundance, potatoes are sometimes a drug in the market, but such seasons of abundance occur less often than with most other crops. Why is it that farmers neglect to grow potatoes more plentifully? Probably many do so from motives of prudence or self-interest, considering the potato too liable to failure to prove profitable; but it is very seldom that the potato fails when proper precautions are taken. By selecting hardy varieties and planting upon well-drained soils with well fermented manures, the potato will be seldom much affected with disease. Some neglect to plant from the supposition that, owing to the increased attention now being paid to this vegetable, the markets will become overstocked; but such fears are groundless. Potatoes have advanced steadily in price for the past twenty years, and must so continue in time, with our increase of foreign population and increasing partiality of our own native-born citizens for this esculent. With such an assurance of a ready market, and with the new hardy and productive varieties, and the ease with which it is cultivated, to what crop can the farmer devote his attention with more certainty of obtaining a reward for his labours? With light manuring and indifferent cultivation, a fair crop of potatoes can be grown, under circumstances of neglect, where corn and

other crops would utterly fail. We would by no means advise all farmers to rush into potato culture to the exclusion of all other crops; but by giving more attention to this root than heretofore, they will not only promote their own interests, but confer a benefit upon the community. Plant only the best varieties; plant early, manure liberally, if possible, and cultivate well, and the result will be satisfactory. Although we believe it advisable to plant as soon as the ground becomes sufficiently warm and dry, yet it is better to plant late than never. The best crops we saw last year were planted in June.

If the potato will endure neglect, no crop will better repay good culture. Weeds should never be permitted to consume the food that in right belongs to the tubers, but should be kept down by the frequent use of the hand or horse hoe. Even, if few weeds exist, frequent stirring the soil in the month of June till the blossoms appear, will greatly augment the crops. Let those who have failed to plant extensively strive to increase their harvest by better cultivation, with the assurance that they will not be disappointed in the result.—*American Farmer*.

## RENT PER SHEEP ON HILL FARMS.

At the Teviotdale Farmers' Club Meeting, Mr. AITCHISON, Linhope, the president (in the chair), opened the discussion on the question, "What should be the rent per sheep, of an average led hill farm, of sixty scores of Cheviot sheep, upon the prices fixed this day, to enable the tenant to realize the profit on which he is assessed for income-tax?" After some reference to the importance and intricacy of the question, and the amount of calculation it necessitated, he said: As this club may be said to be peculiarly connected with the sheep-lands, I thought this question naturally came out of our last day's deliberation, when we struck the average value of sheep produce during the preceding season, and which, upon comparison, proved within a fractional part of the average prices that had been obtained at Mr. Oliver's Auction Mart, which now ranks amongst the leading live stock markets in Scotland. Many of us are old enough to have seen lower prices; but I am convinced, at no period of our farming history did ever such a discrepancy exist between rents and the value of stock produce. The tenant, however, who does not derive any income from his farming speculation has his legal protection from taxation; for it was long ago conceded by the present Lord Halifax, when Chancellor of the Exchequer, that no income-tax could be exacted from the tenant who could make out a case of no income from his farm. In England, you are all aware, the farmer is more heavily taxed than we are in Scotland, where we are assessed to one-third of the amount paid by the proprietor. This may be the law, but it is not arithmetically carried out; for the proprietor does not pay into the Exchequer three times the amount paid by his tenant. To illustrate this, one case in point is as good as fifty; and I find on my farm of Penchrieth, last year, I paid £12 3s. 9d. of income-tax, and the proprietor paid £31 10s. 5d. of property-tax, which is £5 short of three times the amount paid by the tenant, who is assessed upon the total rent of his farm, whereas the landlord claims and secures exemption to the amount of the public burdens upon his property. With these preliminary remarks, I shall endeavour to answer the question upon which I have invited your discussion, and to which this club has furnished the prices; and it is for practical men to solve the rest of the problem, as it refers to the extent of the sales and to indispensable farming expenditure. I have suggested a led Cheviot sheep-farm of 60 scores of sheep of average quality, because a resident farm would greatly mystify the question, inasmuch as everything consumed by the tenant and his family that was the produce of the farm would require to be valued, from the breakfast eggs up to the lamb leg and the joint of mutton, to properly and fully solve this question. It is only proper to state that in making my calculations I have been greatly guided by my Linhope sales, as I consider it a sheep farm of average quality, and where I have diverged it has been in favour of a proportional higher return than I obtained. I have assumed that the number of sheep grazed upon the farm is taken at Martinmas; that these numbers are subjected to an annual death at the rate of one and a-half sheep to the score; and also that the farm affords pasture beyond the 60 score to 90 sheep, as the sheep wages of the two shepherds, all of which I understand to be the use and wont of these Border lands. Amount of sales: 1,130 fleeces, weighing at the rate of 7 fleeces per stone of 24 lbs., at 32s. per stone, £258 5s.; 70 winter skins, averaging 4s. 3d. each, £14 17s. 6d.; 20 summer skins, averaging 9d. each, 15s.; lamb skins amounting to say 15s.—total amount received for wool, &c.,

£274 12s. 6d. 11 score top wedder lambs, a. 8s. 6d. each, £93 10s.; 4 score mid wedder lambs, at 6s. each, £237; 3 score and 15 mid ewe lambs, at 11s. each, £41 5s.; 3 score and 15 thirds and pallies, at 4s. 8d. each, £17 10s.—total amount received for lambs, £179 5s. 6 score and 10 draught ewes, at 19s. each, £123 10s.; 13 shotts of ewes, at 10s. each, £26 10s.; 7 fat ewes, at 30s. each, £10 10s.—total amount received for ewes, £140 10s. Total amount of sales, in which the shepherds are not included, £594 7s. 6d. The following expenses against the farm fall to be deducted: 6 bags of oatmeal, to two herds at 44s. per bag, £13 4s.; the general charge for two lambing men, £10; the extra food and wages for assistants at clippings, hay time, snow storms, &c., not less than other £10; the sheep dip, at 1d. each for total number, £5 7s. 6d. I assume the farm will supply itself with hay, but corn would be required to the extent of 12 bolls, at 24s. per boll, for the weaker sheep in spring, £14 8s. Though the farm may supply itself with the 16 tupe that would at least be required, yet their winter keep would cost 10s. each—£8. It may safely be presumed that a Border hill farm of that extent would have 12,000 roods of open hill drains, which would require to be cleaned out every eight years, which, at 9s. per hundred roods, would amount to the rate of an annual charge of £6 15s. The keeping of sheep stells, keb parks, water runs, water dykes, and other fences in proper repair would incur at least the same yearly outlay—say £8 15s. The commission or marketing expenses upon total amount of sales, at 4d. per pound, would be £9 18s. Total expenses against the farm, £84 7s. 6d.; leaving, after deducting expenses, £510. After appropriating one-third of this £510 as the tenant's third share of return, you leave £340 as landlord's rent, which would amount to 5s. 8d. per sheep. I am aware this mode of calculation is open to criticism, as the tenant is not assessed upon the third share of the total amount of proceeds, but upon the third share of the rent paid to the proprietor; but if this be contended for, you must subtract from the farmer's third share of profit, as return upon capital invested, which, even at the reduced valuations of the two last Whitsondays, would exceed £2,000 and to interest upon this amount, you must give the tenant credit for his public burdens—for road-rates and poor-rates—which I have not subtracted in bringing out landlord's right of rent. I may be further told that last year represented exceptional low sales. I shall be happy if this turn out to be the case, though I at present see few indications that prices will be materially higher this season. Wool brought a fair price, and I have seen both ewes and lambs not more than half the low averages we lately struck. I shall, however, meet this objection by giving the preceding years' exceptional high sales as recorded in the *Hawick Advertiser*; and I have no hesitation in saying it will be well in the long run for both landlord and tenant if we see no more of some of these extravagant high prices, as they raise land to an artificial value, which ends in disappointment and pecuniary misfortunes. I shall confine my calculations to the same numbers and the same charges against the farm, which at these high prices would of course require proportional increase of capital to stock it: Amount of sales: 161 3-7ths stones of wool, at 37s. 9d. per stone, £304 14s.; 70 winter skins, at 5s., £17 10s.; 20 summer skins, at 1s., £1; lamb-skins, say £1—total receipts for wool, &c., £324 4s. 11 score of top wedder lambs, at 17s., £187; 4 score and 10 mid wedder lambs, at 12s. 6d., £56 5s.; 3 score and 15 mid ewe lambs, at 20s. 6d., £76 17s. 6d.; 3 score and 15 thirds and

pallies, at 8s., £30—total receipts for lambs, £350 2s. 6d. 6 score and 10 draft ewes, at 25s. 6d., £188 10s.; 13 shotts of ewes, at 15s., £9 15s.; 7 fat ewes, at 35s., £12 5s.—total receipts for ewes, £210 10s. Total amount of sales, £384 16s. 6d. Amount of expenses against farm, £74 9s. 6d.; commission or marketing expenses upon total amount of sales, at 4d. per pound, £14 15s.—total expenses, £89 4s. 6d.; leaving sum to landlord and tenant, £795 12s. Under my previous mode of calculation this would produce to the landlord a rent of 8s. 10d. per sheep; and if you strike the average between what may be termed the low prices and the high prices, you will find a rent of 7s. 3d. per sheep. As a practical sheep farmer, this is the conclusion I have arrived at. There may perchance be trivial incidental errors in the calculations, and the mode in which I have presumed to interpret the levying the property and income-tax may not, as I have already remarked, meet with general approbation; but whatever may be your mode of calculation, or in whatever light you may view the question, you must all arrive, I am convinced, at this complexion—that few, if any, hill sheep farmers in these Border lands were legally entitled to have paid the income-tax last year. The Chairman concluded by saying the statement he had laid before the club might not be acceptable in all quarters, but he saw no reason why farmers should not inquire into matters into which their own interests were concerned, in a respectful and liberal spirit.

MR. OLIVER (auctioneer) said he could not pretend to such knowledge of the subject as the president had proved himself to possess by the able paper read by him; but, thinking it would scarcely be courteous to Mr. Aitchison if other members of the club did not take up the question and devote some attention to it, he had made a few calculations which he would submit for the consideration of the club. He assumed, in his estimate, that of 60 score of sheep 12 score are ewe-hoggs, leaving 48 score of breeding ewes and gimmers, which might bring 41 score of lambs, from which, deducting 13 score of ewes to maintain stock, there would remain 28 score of lambs to sell. Of these, I assume, there may be 20 score wedders. 12 score of tops, at 8s. 6d., £102; 6 score of seconds, at 6s., £36; 2 score of shotts, at 4s. 8d., £9 6s. 8d.; 6 score mid-ewes, at 11s., £66; 2 score shott ewes, at 4s. 8d., £9 6s. 8d. total for 28 score lambs, £222 13s. 4d. Then, 8 score of draft ewes, at 19s., would bring £152; and 4,200lbs. of wool (3½lbs. per fleece, 175 stone) at 32s., £275—total receipts, £649 13s. 4d. Deduct for casualties, such as death, &c., £49 13s. 4d., and expense of bathing, clipping, and marketing, stock shepherd's meal, &c., £60—leaving a balance of £540. One-third chargeable for income-tax—£180—leaves for rent £360 at the rate of 6s. per sheep. Next, take the cost of stocking. 48 score ewes and lambs, at 40s., £1,902; 12 score ewe-hoggs, at 28s., £336; utensils, &c., £12—showing a capital of £2,250. Interest of this capital, at 5 per cent., is £112 10s.; and allowing the same amount for risk and management, they had £225 to deduct from £540, leaving for rent £315, or 5s. 4d. per sheep. I have confined myself strictly to the question; but had I extended my calculations, the prices of last year being exceptionally low, I think they would have brought out on an average, during a lease, a rent of from 7s. to 8s. per head.

Mr. AMOS (Earlside) said he had made some calculations for the discussion of the question, which had unfortunately fallen aside; but they resulted in a figure for sheep very little above that quoted by Mr. Oliver, but not so high as that of the president.

Mr. ANDERSON (Woodburn) considered that the rent of hill farms during last year should not have been more than 5s. 9d. a-sheep, to leave profit to the farmer, on which income-tax could be charged.

Mr. GREVZ (Borthwickbrae-burnfoot) stated that he need not recapitulate the details so elaborately given by the Chairman and Mr. Oliver, and might premise that in the calculations made by him he had only allowed one to the score for death, which he was convinced was too low. Deducting the produce of other thirty from the sum he calculated for rent, £368, would bring his estimate within a few pounds of that of the Chairman.

Mr. HADDON, Honeyburn, had no practical experience of the question, and could only make one or two observations on the principle on which tenant-farmers were assessed for income-tax. The system of levying for income of tenant-farmers one-third the amount of rent paid by them had, he believed, been in general regarded as a boon by them, as the inquisitorial process to which other traders were subjected was thereby avoided; and he considered the assumption that a tenant would make a third of the amount he paid for rent out of his land was moderate; for he was glad to believe the stock farmer would in general see better prices going than they had received last year.

Mr. HOBKIRK, Broadhaugh, thought the Club was much indebted to the President and Mr. Oliver for the trouble they had taken in making the calculations submitted; and he thought it would perhaps have been better for some like himself, who had lately entered on stock farms, if they had had these calculations before them ere they listened to the advice of friends and neighbours. He had on one occasion appealed successfully against the payment of income-tax on the third of his rent, after showing from his books that the tax was not fairly eligible. A much more correct system of book-keeping than was generally practised by farmers was, however, requisite to satisfy the Commissioners of Income-tax that an appeal should be sustained; and it was not very easy to carry this out, as it was a considerable time before the return for sums expended on improvement could be ascertained.

The CHAIRMAN, in reply, said if Mr. Oliver had deducted the allowance for death in sheep at the outset of his calculation, the difference between his and that made by him (the chairman) would not have been much. He agreed with Mr. Haddon that the mode of levying the income-tax on the farmer was one of which they were not entitled to complain; and the farmers of Scotland were more lightly assessed than their brethren in England, a result in great measure owing to the exertions of Mr. Johnstone. He felt the importance of Mr. Hobkirk's remarks as to an improved system of book-keeping, and trusted the rising generation would profit by them if those advanced in years could not get into it. Men were certainly very foolish if they paid income tax without being legally bound to contribute by that means to the fund of the State. The discussion then terminated.

## FOREIGN AGRICULTURAL GOSSIP.

The Society of Agriculturists of France comprises at present 1,285 members, viz., ten perpetual members at £40; 1,067 founder-members at £4, and 208 ordinary or delegate-members at 16s. The whole subscribed capital amounts to £4,838, of which £3,000 has been paid to Baron James de Rothschild, and placed in great part in French Government-securities. Thus has been accomplished, in the best possible manner, the first period of organization.—The rain has come at last in France, and no one would complain that it has come had it not been accompanied by violent storms which have occasioned great injuries in several départements. It was time that the drought should give place to humidity, of which French soil had been deprived for three months or nearly so. The grapes have suffered a good deal, especially in vineyards

situated on coasts. Beet-root, potatoes, and roots have developed themselves without difficulty, and it is to be feared that they have not generally attained a satisfactory size. It is to be hoped, however, that the rain which has fallen during the last few days will much alleviate the effects of the prolonged drought of the somewhat remarkable summer of 1868.—On the occasion of the *fête* Napoleon this month several gentlemen were named Officers and Chevaliers of the Legion of Honour. The gentlemen thus nominated comprised M. Victor Rey, President of the Society of Agriculture of Autun (officer); M. Alexandre Becquerel, Professor at the Conservatoire Impérial des Arts et Metiers, and Member of the Institute (officer); Count Auberjon, agriculturist in the department of the Haute-Garonne

(chevalier); M. Beaucarne, Leroux, agriculturist in the département of the Nord (chevalier); M. Briand, agriculturist in the département of the Orne (chevalier); M. Henri Carette, agriculturist in the département of the Aisne (chevalier); Viscount de Charnacé, agriculturist in the département of the Sarthe (chevalier); M. Chauveau, professor at the veterinary school of Lyons (twenty years' service—chevalier); M. Fleury-Lacoste, president of the Agricultural Society of Savoy (chevalier); M. Gallois, president of the agricultural committee of Thiouville, Moselle (chevalier); M. Frederic Hamot, agriculturist in the département of the Seine-et-Oise (chevalier); M. Bignon, agriculturist at Theneuille-allier (chevalier); M.

Monnot-Arbilleur, agriculturist in the département of the Doubs (chevalier); M. Sipière, agriculturist in the département of the Hérault (chevalier); and the Marquis de Verdun, president of the Avranches Agriculturists' Society, Manche (chevalier).

The French vines appear to have been a good deal knocked about by storms of late; such of them as have escaped serious damage from the storms will, however, be greatly benefited by the rains which have followed. The beetroot crops of the North of France can also scarcely fail to benefit from the rains, which are at last contributing again to the fertilization of that empire.

## CALENDAR OF AGRICULTURE

In late localities the harvest will be prolonged into this month, which is the general time of that season in the northern counties of England and over the whole of Scotland, and into next month in the furthest northern parts. The crops are cut by hand sickle with a scythe-edge, and also toothed as a saw—the old form, and much the best for making clean work. The sheaves are tied, and placed in stooks of twelve, and often with two as hoods, covering the top of the stook from the middle to the end, with one sheaf spread out. In the case of greenly-ripened crops, and in late seasons, the straws in sheaves are loosely tied at the neck, and placed singly on end, under the name of "gaetings," where the drying is sooner done, and the sheaves are firmly tied and carried. This mode is very useful in highland countries, and even in the higher lowlands. Machinery may never be used on the uneven surfaces and hilly declivities of North Britain, where the climate adds to the hindrance by twisting and laying the crops by storms of wind and rain. The dried crops are carried, and built into ricks, which are thatched with straw and ropes, after a few days to consolidate. A permanent roof of thin iron, placed on pillars, will be a great advantage in the harvests of all countries, to protect against damage from rains, which often happens before being thatched.

Beans are cut by the hand sickle; and tie the haulm into sheaves with straw ropes, or of tarred twine. Carry the crop when dry, and build into ricks, which must be immediately thatched, as the straw is very open to receive rains.

Thatch all ricks quickly. Rake the rickyard clean, and carry every rubbish to the dungyards.

Finish the dunging of clay fallows. Cart stones and tiles to drains. Scour ditches. Repair, widen, and straighten brooks and rivulets; and mix the materials excavated with lime, to prepare an earthy compost.

Lay well-prepared earthy composts on grasslands eaten bare and on lucerne, the surface being first scarified; and then roll it. This preparation raises the first spring crop.

Gather fruits, as pears and apples.

Pick hops. The flowers are cut from the stalks with scissors, fall into bins, measured and paid by

a fixed rate; then carried to the oast and dried, chiefly with coke, sulphur being added to give the hops a yellow tinge. The haulm of hops is used for litter; and the poles are placed in a cone, with a thatch of straw on the pointed top, to keep the stack dry.

Towards the end of the month, sow rye for a seed crop, and also for being consumed on the ground as the early green food of the farm, for ewes and lambs. Sow winter vetches on leys or stubbles for the same purpose; and seed the ground thickly for both crops—not under four bushels to an acre. Mix a small quantity of rye, winter beans, or barley with the tares, as the stems of these plants tend to support the procumbent vetch.

In the end of the month, seed-furrow the clay fallows to be sown with wheat, and plough grass leys for the same purpose. Scuffle pea and bean and tare grattans with a duck-footed grubber, as Coleman's cultivator. Collect and burn the weeds and roots of plants, and remove stones and rubbish. Plough with one furrow, and lay on a light dressing of farmyard dung, on any poorer soils. Good crops of wheat are got in this way on inferior lands.

As a beginning of fallowing, plough the early soils that are intended for next year's green crops, as potatoes and swedes, and then common turnips. This autumnal fallowing can be done only in early and benign climates, that finish the harvest by the middle of this month, where it will facilitate and expedite the spring operations. The potato-grounds are dunged and planted as in the spring, the drills being thirty inches wide, and deeply covered by two heavy furrows of well-wrought earth. The crops are earlier and more abundant than in the spring planting. The land for swedes may be wrought and set up into drills to receive the dung in May, when the drills are split to cover the dung, and the seed is sown. Or the seed may be sown in the spring on the split drills, over the dunged land; or in autumn, but on a bed of stale earth, which in many cases answers very well. But the working of land may not be so beneficially performed under declining as under advancing suns; and soil becoming "sleeched" by rains, from lying in a comminuted condition of fine particles, may not be so well fitted to receive seeds and pro-

duce delicate germinations. The ground may be better permeated by air and water in the furrows of winter ploughing than in the close condition of a comminuted reduction. But in the south-

ern counties the autumnal months do not appear to differ much from the spring for the purposes of cultivation, but may not agree in the use of vegetation.

## CALENDAR OF GARDENING.

### KITCHEN GARDEN.

Sow corn salads, mustard and cress twice, radish, lettuce in frames, and transplant lettuce to stand on ridges all winter. The golden or Australian cress should be added to that in ordinary use. Lettuce may be sown early for winter, and when grown for transplantation ought to be pricked out into a roomy frame, where the plants will prosper and stand the winter. Some of the hardier sorts may endure the frost, but in general the other kinds perish.

Cabbage for spring. Plant the main stock in an open situation, the soil rich with manure, unless it be new loam. All the brassicas and cruciferous plants in general thrive amazingly in fresh earth, and much better than in any old garden soil, however richly manured.

Spinach: The plants raised from seed should be thinned out to regular distances of two or three inches; the plants will then become stocky, and may be thinned again, and the plants so removed used for the table.

Turnips: Thin out the plants, and hoe the spaces between the rows, for these crops should be always sown in drills.

Sow salads again, if required.

Continual attention to weeding is required to exterminate every weed, for now the garden is liable to be filled with groundsel, chickweed, and other rubbish. Trench-dig and ridge spare ground; manure and prepare plots of ground for artichokes, asparagus, and seakale, carry off and clear the garden from haulm, and take all to the rotting compost heaps. Bring each plot and division of ground to that state of neatness and order which renders a garden a sober quiet picture during winter, more beautiful perhaps than that of the rampant luxuriance of summer.

Dig potatoes carefully, pick out the worthless, but do not wholly discard, for it will be proper to ascertain whether or not they will extend the disease, therefore if there be any full and starting eyes, reserve such, sprinkling them with lime, and hereafter try a planting in poor and sandy ground. Facts have shown that these infected sets do not in any degree promote disease, also that the land which produced a perfectly tainted crop is innoxious to the potato plants of a following year.

Mushroom beds are now prepared. This is the season for those produced naturally, especially if the month be showery, and we are led to ask why are mushrooms always cultivated in the "dark" when nature proves that they prosper in full daylight?

### FRUIT DEPARTMENT.

Prune back to within three or four eyes the projecting shoots of apple, pear, plum, and cherry trees, so far as to aid the swelling of fruitful buds. At the end of the month plant young fruit-trees in nicely-wrought maiden loamy or turfy soil: nothing retains trees in health so high as such grounds. Mulch them freely over the site of their roots.

Let an early operation be the final planting of strawberry beds and rows: well-rooted young plants will rarely fail; but the best method is to be provided with young stock, raised in pots, and now transplanted with entire balls.

Place nets in front of the wall-fruit trees to catch the falling fruit. If wasps abound, suspend bottles half-filled with trench water among the branches, thus thousands may be destroyed.

Protect grapes and other fruit by muslin or gauze covers.

Pot strawberries for forcing, and make fresh plantations in deeply-worked new land.

### FLOWER GARDEN.

Remove and re-pot choice green-house plants; plant slips of herbaceous flowering plants; give every portion of the grounds a neat hoeing and raking to destroy weeds, and bring the surface to that neat appearance which is so reposing during the winter. Weeds and rubbish left now remain a nuisance, for it will soon be too late to work the ground.

Hawthorn and other fences may be yet clipped, box edgings planted or renewed, and lawns mown and rolled. Remove green-house plants to their winter quarters; transplant pinks raised from pipings, and also some hardy herbaceous plants, then rough dig or fork all the vacant parts of borders.

Weed and roll gravel walks when they are in a damp state.

The gathering of manure must be constantly employed in all times and seasons. All grassy herbage from road sides, and with fresh earths attached, the droppings of animals, the tall weeds of all kinds, with broad leaves and succulent stems cut into short lengths before the seeds are formed, or with the top cut away if maturity has happened, can be got in most situations, and form most excellent materials for composts in a liquid tank or in a dry heap with mild lime in mixture. These preparations are most essential to the growth of vegetables, and cannot be neglected without failures, which are most unfairly attributed to bad lands and unfavourable climates. No success will be obtained without dung in quality and quantity, and no failures will happen when properly prepared and used.

## AGRICULTURAL REPORTS.

## GENERAL AGRICULTURAL REPORT FOR AUGUST.

At the commencement of the month, the weather continued very favourable for harvest operations, which were proceeded with great rapidity. In the second week, however, a break occurred, and genial showers prevailed throughout the country. These have not been sufficiently heavy, as a rule, to retard harvest work, and most of the wheat in the north of England has been carried in excellent condition. The few patches yet standing will, doubtless, be cut as soon as labour offers for the purpose. The samples coming forward fully justify the anticipations lately expressed, the quality being, for the most part, very superior, the weights vary from 61lbs. to as high as 87lbs. per bushel. Some parcels, however, are steeply in consequence of the excessive heat experienced towards the close of last month, but this is the exception. The season has been altogether a wheat season, and the out-turn of the crop must be considered very satisfactory. Taking into account the large extra breadth of wheat sown this year, we have, we presume, a yield of fully one-third in excess of last year. Prices may therefore be expected gradually to decline, especially as the crops in America and throughout the continent have turned out very abundant, and the importations will probably continue on an extensive scale. We do not look, however, for any sudden or rapid decline, as stocks both here and abroad, under the influence of several successive bad seasons, have been greatly reduced, and much of the present surplus will be required to replenish them. At Mark-lane, on the appearance of the new wheat in fair quantity, prices gave way heavily; but a reaction subsequently took place, as might be expected under the circumstances, and a great part of the decline was recovered. On an average, the reduction that has taken place during the month does not exceed 2s. per qr. The supplies up to the present time have not been liberal; but, doubtless, farmers will thrash out rapidly, in order to take advantage of the present range of prices. In France and Hungary, and, indeed, throughout the continent, the wheat crop has turned out good, but most kinds of spring corn show a slight deficiency. Already new samples of Baltic wheats have been exhibited at Mark-lane, the quality of which has proved excellent. From America the accounts are most encouraging, the Californian crops being stated to be greatly in excess of last season.

New barley has been offered in considerable quantities, and some of the samples—grown on heavy lands—have been of excellent quality, but those grown on gravelly soils are generally light and steely. Prices range from 38s. to 44s. per qr. We think, on the whole, that the crop is below an average, the late forcing weather having induced too rapid a growth, and the want of moisture having proved a serious drawback.

There have been heavy importations of Russian oats, mostly of inferior quality, and for such prices have been on the decline. Good sound corn, however, has been scarce, and commanded very full prices. We believe the crop here to be considerably under last year's.

In regard to the potato crop, the late seasonable rains have proved of much benefit, and there is a fair prospect now of an average crop. There have been few complaints of blight either here or in Ireland.

The yield of beans and peas, so far as the crops have yet been secured, has proved under that of last year. Prices, therefore, have ruled firm. Probably, the crop of vernal corn is the worst ever known in this country.

The recent prolonged drought has a most pernicious effect upon the root crops, and turnips, swedes, and mangolds have proved great failures. With continued heavy rains, however, a change for the better may be expected, but without doubt we shall suffer severely from the want of food for the stock during the winter.

The fruit crop, with some few exceptions, has turned out well; but vegetables have proved a partial failure.

At the public sales of Colonial wool, the attendance of both home and foreign buyers has been limited. Upwards of 220,000 bales have been catalogued. The biddings have ruled very inactive, and the quotations slow, as compared with the average of last series: a decline of 0½d. to 1d. on good,

and of 1d. to 2d. on inferior qualities. Considerable parcels have been withdrawn, owing to the low prices bid. The importations have continued on a most extensive scale, and there is little prospect of any great improvement in prices. The stocks of English wool have been on the increase, and the quotations have gradually tended downwards: possibly, with a revival of trade in the manufacturing districts, of which, however, few symptoms have as yet appeared, the demand may become more active.

The crop of hay has turned out very small; but the quality of it is fine: hay has accordingly become an article of import from America, and, at the prices current here, will doubtless yield the shippers remunerative returns. The quantity of hay on sale in the Metropolitan Markets has been small, and the demand having ruled active in consequence of the failure of the root crops, prices have tended upwards. The closing quotations this month are as follows: New meadow hay, £4 10s. to £5 15s., old ditto £4 10s. to £6; new clover, £4 10s. to £6 10s., old ditto £5 10s. to £6 15s.; straw, £1 10s. to £2 per load. Higher rates, however, were current at the commencement of the month. Since then the heavy rains acting upon the hardened and thirsty soil have caused an extraordinarily rapid growth of grass in all quarters.

In Ireland, nearly the whole of the wheat crops have been secured in good condition; but there, as in England, the yield of spring corn is below the average. Wheat has sold slowly at declining quotations; but most other kinds of produce have ruled firm. As might be expected, the potato crop is in a most backward condition; but the late heavy rains have caused a decided improvement in it.

In Scotland, the harvest is well advanced towards completion, and, on the whole, the yield is stated to be favourable, and in excess of previous anticipations. Straw, however, will be scarce. The various markets have only been scantily supplied with produce, and the quotations have followed the course of prices in the English markets.

## REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

Owing to the great scarcity of food in the whole of our leading districts, large numbers of beasts, in a half-fat state, were exhibited in the Metropolitan Market during the first fortnight of the month. Since then, however, as we have had copious showers of rain, and as grass has grown with great rapidity, the supplies have fallen off. Prime stock, from its scarcity, has advanced fully 4d. per 8lbs., and the impression in some quarters is that prices have not seen their highest range. The best Scots, crosses, &c., have advanced to 5s. 6d. per 8lbs.

The numbers of sheep brought forward have been extensive, but in very middling condition. Most breeds have changed hands steadily, at about 4d. per 8lbs. more money, Downs and half-breds having sold at 5s. 6d. per 8lbs. Some period must elapse ere the sheep can recover from the effects of the late severe drought. Winter-food will, we apprehend, be very scarce, as the turnip-crop is a complete failure, and as a second-cut of hay is wholly out of the question.

Lambs, though in but moderate supply, have moved off heavily, and prices have had a downward tendency. The closing figures were 4s. 6d. to 5s. 6d. per 8lbs. Very few really prime lambs have been on offer.

The numbers of calves brought forward have been extensive. Prime calves have changed hands freely on rather higher terms; but inferior qualities of veal have commanded very little attention.

In pigs only a limited business has been transacted. Nevertheless, the quotations have been well supported.

During the month the imports of foreign stock into London were as follows:

	Head.
Beasts ... ..	10,179
Sheep and Lambs ... ..	28,119
Calves ... ..	1,883
Pigs ... ..	3,288
Total ... ..	41,469



## COMPARISON OF IMPORTS.

Aug.	Beasts.	Sheep.	Lambs.	Calves.	Pigs.
1867	8,741	22,000	1,943	1,057	5,726
1866	14,927	37,390	7,176	2,960	4,087
1865	16,536	54,333	6,727	3,287	8,251
1864	11,475	59,114	2,716	2,786	4,326
1863	9,502	34,937	4,125	4,327	4,108
1862	5,630	30,653	5,204	2,060	3,297
1861	6,581	32,210	3,176	1,874	3,718
1860	6,647	38,249	1,856	2,520	4,075
1859	6,502	29,175	3,308	3,254	1,805
1858	8,293	19,500	2,764	3,512	2,935
1857	4,692	21,215	1,760	2,661	2,322
1856	5,677	17,801	1,271	2,301	1,901
1855	5,341	22,605	984	2,484	3,476

The annexed figures show the total supplies of stock exhibited and disposed of:

	Beasts	Sheep and Lambs	Calves	Pigs
Head.	2,230	176,030	3,253	1,175

## COMPARISON OF SUPPLIES.

Aug.	Beasts.	Sheep and Lambs.	Calves.	Pigs.
1867	20,030	124,190	2,653	2,205
1866	26,840	153,720	2,620	2,560
1865	29,600	147,520	3,828	2,480
1864	29,420	154,300	3,426	3,046
1863	26,204	149,430	3,070	2,622
1862	24,072	154,920	2,354	3,012
1861	23,420	159,740	2,952	3,220
1860	22,290	151,500	3,346	2,070
1859	23,170	165,090	3,322	2,320
1858	26,915	151,530	2,127	3,510
1857	20,695	143,768	3,173	2,460
1856	21,271	147,260	3,354	2,875
1855	20,816	151,870	3,356	4,272

The supplies of home stock thus compared with the three previous years:

From—	Aug. 1865.	Aug. 1866.	Aug. 1867.	Aug. 1868.
Lincolnshire, Leicestershire, and Northamptonshire	9,820	5,600	7,200	9,600
Other parts of England	3,000	2,000	2,500	1,590
Scotland	730	80	70	306
Ireland	520	162	310	295

Beef has sold at from 3s. to 5s. 6d.; mutton, 3s. to 5s. 6d.; lamb, 4s. 6d. to 5s. 6d.; veal, 3s. 6d. to 5s. 2d.; and pork, 3s. 4d. to 4s. 4d. per 8lbs., to sink the offal.

## COMPARISON OF PRICES.

	Aug., 1862.	Aug., 1863.	Aug., 1864.
Beef from ...	3 4 to 4 10	3 4 to 4 10	3 4 to 5 0
Mutton ...	3 8 5 4	3 6 5 2	3 10 5 4
Lamb ...	5 0 6 4	5 0 6 8	5 8 6 8
Veal ...	4 0 5 0	3 4 4 8	4 0 5 0
Pork ...	3 8 4 10	3 6 4 6	3 6 4 6
	Aug., 1865.	Aug., 1866.	Aug., 1867.
Beef from ...	3 0 to 5 6	3 8 to 5 6	3 4 to 5 2
Mutton ...	4 4 6 8	3 10 6 0	3 2 5 4
Lamb ...	6 0 7 0	5 8 7 4	4 6 5 6
Veal ...	4 2 5 4	4 0 5 4	4 0 5 4
Pork ...	4 0 5 0	4 0 5 0	3 4 4 4

The supplies of meat brought forward in Newgate and Leadenhall have been very moderate. On the whole, the trade has ruled firm, as follows: Beef, from 2s. 10d. to 4s. 10d.; mutton, 3s. to 4s. 10d.; lamb, 3s. 10d. to 4s. 8d.; veal, 3s. 6d. to 4s. 6d.; and pork, 3s. 2d. to 4s. 8d. per 8lbs., to the carcase.

AGRICULTURAL INTELLIGENCE,  
FAIRS, &c.

**ASHBOURN FAIR.**—A thin show of stock, which sold at an advance of 10s. to 20s. per head. Sheep 2s. per head advance, and all cleared off. Beef 6d. to 7½d., mutton 6d. to 7d. per lb.

**BANBURY FORTNIGHTLY FAIR.**—There was a good

demand for mutton at improved prices. A large number of lambs, but the demand was not great. Nothing doing in cattle. A sale of rams took place, but business was rather dull in this department, and the quotations were under those of last year.

**BELLINGHAM LAMB FAIR.**—A great many lots met with purchasers at what was considered fair prices in such a season. Some lots reached 11s. per head; and Mr. M. Ridley sold a lot of Cheviots at 9s. 6d. per head. Mrs. Hays sold a lot of half-breeds so low as 4s. 6d. per head. There were also a few lots of Irish stirks on the ground, which were almost all unsold.

**BOSTON SHEEP MARKET.**—Small show, but a brisk trade, prices being fully 0½d. per lb. in advance of last week.

**BRIDGNORTH FAIR** was well attended. Sheep were a drug, a considerable number being penned, exceeding by far those of August fairs generally. There was also a fair show of good cattle. Good wether sheep sold from 6½d. to 6¾d. per lb. Fat cows realized 7d. per lb. In the pig market, good store pigs sold from 17s. to 24s. each.

**BUCKINGHAM FAIR.**—There was a very small attendance, and the supply was short. Trade was exceedingly dull, and very few changed hands. Cows with their calves, from £15 to £17, fat beasts from £14 to £18; mutton 3s. 8d. to 5s. per stone, lamb 5s. to 5s. 9d.; ewes from 25s. to 35s. each.

**BURGH FAIR.**—There was only a short supply of stock. The farmers and graziers of the Marsh were too busy with the harvest to attend, but there was a large attendance of buyers, many of whom had come from distant parts. An advance in the price of stock was the result, and beasts made from 30s. to 40s. per head, and sheep from 4s. to 5s. more than at the market the preceding day.

**GLOUCESTER MONTHLY MARKET.**—Supply of beef small; mutton of good quality abundant; an average number of bacon pigs of good quality offered. Trade was active, and good prices were obtained for all kinds of meat. Mutton fetched 7½d., beef from 7½d. to 8d. per lb.

**GRANTHAM FAT STOCK MARKET.**—A short show of beasts, but a good supply of sheep. There were plenty of buyers, and a very brisk business was done. Beef 7s. 6d. to 8s. per stone, mutton 6½d. to 7d. per lb. Beasts 25, sheep 780.

**HEREFORD FAIR.**—Of store ewes offered for sale the number was comparatively small, and trade was dull, the present condition of the country—with the grass growing very fast, and there being some prospect of late turpits—making holders and buyers alike hesitate as to the best course of action. There was a tolerably fair demand for fat sheep, good wethers and lambs realising from 6½d. to 7d. The trade in store cattle, of which the supply was limited, was dull. Beef of the prime quality was worth 7d. In the pig department there was very little demand; recent rates prevailed, but little business was done. The horses were chiefly confined to animals for draught purposes, and of those some very good ones were on offer, and exchanged hands at high figures, viz., from £30 to £40.

**KNIGHTON FAIR.**—Beef made from 7d. to 7½d. per lb. Cattle were a drug, and very few changed hands. The demand for fat sheep was good, and prices ruled high. Very few ewes changed hands. There were a great many pigs, and higher prices being asked for them, a good many were driven home unsold.

**LANARK SECOND LAMB FAIR.**—The best sale was for black-faced wether lambs, which advanced in value in sympathy with the demand. Seconds in some cases brought nearly as much as tops at the market in the beginning of the month. Generally, however, there was a clear advance of from 1s. to 2s. a head, and probably in one or two instances it might be a little more. Black-faced ewe lambs declined greatly in value from last year's market—say from 3s. to 4s. a-piece. On several lots, however, there was a fall of from 5s. to 7s., irregularities which originated in last year's market owing to the extraordinary dullness by which it was characterised.

**LINCOLN FAT STOCK MARKET.**—A small show, and prices much in advance, mutton being fully 1½d. per lb. more, and beef was also dearer.

**LINCOLN LAMB FAIR.**—A small show of lambs, and prices 1s. in advance, good useful sorts selling at 16s., 18s., and 20s. each.

**ROMNEY LAMB FAIR.**—This annual fair for the sale

of sheep and lambs bred upon Romney-marshes was held at New Romney on Friday. About 18,000 sheep and lambs were penned, the majority of the latter being very poor, owing to the shortness of keep caused by the dryness of the season. Some of the best flocks were sold at 17s. per head, and others exchanged hands at from 13s. to 15s. A few wretchedly poor were got rid of at lower prices, one flock only realizing 5s. per head. There was a good show of wether tegs, but trade in these was dull, and prices ranged from 26s. to 32s. Most of the lambs exchanged hands, but a good many of the other kinds of sheep on offer remained unsold. There is usually a brisk trade done in wool at this fair, but on Tuesday there were few transactions, growers declining to accept the best offer made by the few buyers present—viz., £15 10s. per pack for good Kent fleeces.

**SAXMUNDHAM LAMB FAIR.**—The prices of good lambs varied from 21s. to 27s., and half-bred lambs from 13s. to 20s. per head. The fat sheep sold at fair prices.

**SETTLE FAIR.**—A large number of lambs, but from want of keep they were chiefly poor, and for such farmers had to take low prices. Some sheep and a few calving cows were also shown, the latter of which sold pretty well.

### THE PRIZES AT BRITFORD SHEEP FAIR.

JUDGES: Mr. William J. Brown, Box.  
Mr. Francis Budd, Hatchwarren.  
Mr. T. Compton, Fisherton Delamere.

#### PRIZES.

A piece of plate, of the value of seven guineas, given by F. J. E. Jervoise, Esq., for the best 100 wether lambs, bred by the competitor, and not having been fed on any artificial food—Mr. J. Fleetwood, Coombe Bissett.

A piece of plate, of the value of five guineas, given by Lord H. Thynne, M.P., for the second-best ditto, on the same conditions—Sir Edward Hulse, Bart., Breamore.

A piece of plate, of the value of five guineas, given by Thomas Fraser Grove, Esq., M.P., for the best 100 wether lambs, without restriction as to feeding—Mr. James Rawlence, Bulbridge.

A piece of plate, of the value of five guineas, given by General Buckley, for the best 100 wether lambs, from a flock not exceeding 400 ewes, bred by the competitor, and not having been fed on any artificial food—Mr. H. Woodcock, Fugglestone.

A piece of plate, of the value of three guineas, given by the Britford Fair Committee, for the second best ditto, subject to the same conditions—Messrs. J. J. and W. Flower, Coombe Bissett.

A piece of plate, of the value of five guineas, given by F. Baring, Esq., M.P., for the best 100 breeding ewes, good in toph, having been in the possession of the competitor, at least six months—Mr. Edward Waters, Stratford-sub-Castle.

A piece of plate, of the value of five guineas, given by E. Hamilton, M.P., for the second-best ditto, on the same condition—Mr. Michael Rooke, Amesbury.

A piece of plate, of the value of four guineas, given by the Britford Fair Committee, for the best 100 wether sheep of any age, without restriction as to feeding—No entry.

A piece of plate, of the value of five guineas, given by Viscount Folkestone, for the best Hampshire Down rams of any age—Mr. John Moore, Littlecott.

A piece of plate, of the value of five guineas, given by the Earl of Pembroke, for the best two-tooth Hampshire Down rams—Mr. R. Russell, Farringdon.

A piece of plate, of the value of five guineas, given by M. H. Marsh, Esq., M.P., for the best pen of 10 Hampshire Down ram lambs—Alfred Morrison, Esq., Fonthill.

A prize of two guineas, given by the Fair Committee, for the second best ditto, Mr. R. Coles, Middleton, Warminster.

### SALES OF STOCK.

**MR. CHARLES HOWARD'S OXFORD DOWN SALE.**—The sad prospect of sheep-keep in the winter, and the universal harvest, so to speak, deprived Mr. Howard of several of the accustomed faces at his sale; and there were only 100 to luncheon, as against 160 or 170 last year. Mr. John Clayden was in the chair. The sixty-three sheep for sale averaged

£10 1s. 4d.; and the five which were let for the season reached about 8gs. each. Every sheep which was put up for sale was parted with; and the aggregate of the sale and lettings was £875 13s. 6d. Some went to the Southern States of America for Mr. Everitt, others to Belgium for Baron Piërs. Sir W. Williams was a Cornwall purchaser; and Oxfordshire, Berkshire, Bucks, Herts, Essex, Cambridgeshire, Huntingdon, and Northamptonshire were not behind Bedfordshire in their appreciation of the Oxford Down as a sire. Mr. Strafford was the auctioneer.

**WEST NORFOLK RAMS.**—The annual letting of Mr. H. Aylmer's long-woolled rams occurred on July 30th, at West Dereham, Norfolk. The 100 ram lambs offered made £517 10s., being an average of £5 5s.; the 86 shearlings were let for £742 10s., an average of £9 6s.; and the ten two-shear sheep realized £75 5s., being an average of £7 10s. Count Eglostein, of Prussia, was among the buyers. Among the gentlemen present at the luncheon were the Hon. T. de Grey, M.P., and Sir W. Bagge, M.P.

**MR. TREADWELL'S OXFORD DOWNS.**—The sale and let of these sheep took place at Winchenden, Bucks, on July 30th, under the conduct of Mr. Mumford. The first three rams were put up to be let for the season, but two only were let, and realized £15 4s. 6d. Forty-three sheep were then sold, and the amount realized by them was £401 12s. 6d., being an average of nearly £9 10s. each, a less price than that of last year, which is the case at all the sales this season. Two ram lambs fetched £7 17s. 6d., and the ewes and theaves £93 10s. 6d. The whole amount realized by the sale was £518 4s. 6d.

**BULBRIDGE RAM SALE AND LETTING.**—The sale and letting of Mr. Rawlence's rams and ram lambs took place on Wednesday, July 29, by Messrs. Ewer and Winstanley, and, considering the untoward season, the prices obtained were satisfactory. The highest price obtained for rams let was 57 guineas, at which figure Mr. Morrison, of Ponthill, hired a ram; and another at 35 guineas. Others were let at 20 guineas, 15 guineas, 14 guineas, down to 9 guineas. In the ram lambs sold at 40 guineas, 26 guineas, 18 guineas, 15 guineas, 17 guineas (for a pair), and at 14 guineas (for a pair); others selling at various prices down to 9 guineas. One two-tooth ram let at 43 guineas, another at 20 guineas, and a two-tooth ram was sold to Captain Walter for 31 guineas; the other prices for two-tooth rams ranging from 14 to 9 guineas.

**THE MARKSHALL RAMS.**—Mr. T. Allen's annual letting of long-wool rams was well attended. The biddings were brisk, considering the season, and the prices were realized quite equal to Mr. Allen's expectations. The prices varied from £5 to £12, with an average for 46 shearlings of £6 14s., and four two-shears of £4 per head.

#### THE LICHFIELD SALE OF SHROPSHIRE DOWNS.

—Mr. May's and Mr. Bradburne's sales this year were incorporated with that of the Freeford flocks, the property of Colonel Dyott, M.P., and his tenant, Mr. Coxon. Colonel Dyott's sheep came first, of which Mr. R. Lawrence bought two at 8½ guineas and 6½ guineas; but of the seventeen offered only four or five changed hands. Mr. Coxon's sheep commenced with Conservative. He was secured by Mr. W. Kemp Bourne at 20 guineas, at which figure Mr. Wright obtained Chevalier. Royal Duke, a son of Mr. Thornton's Duke of Newcastle, was let to Mr. Hamilton, of Dunboyne, at 42 guineas, the same gentleman also purchasing a shearing, by Sheet Anchor, at 55 guineas. Mr. May hired a shearing at 21 guineas, and Mr. Clare bought one at 19 guineas, the average being nearly £19 each for 25 sheep. Mr. Kendrick bought two of Mr. May's at 6 and 9 guineas, and Mr. Mynors gave 14 guineas for Great Eastern, the Royal Agricultural Society show ram, which let last year at 35 guineas; but the great majority of this lot were also passed. Mr. Preece, of Shrewsbury, officiated as auctioneer.

At Mr. C. R. KEELING'S SALE, at the Yew Tree Farm, Penkridge, the highest price was 41 guineas, at which a shearing was hired by Mr. R. H. Masfen. Mr. W. Masfen bought one at 31 guineas, and Mr. Willoughby Wood a very good sheep, a son of Lord Weston, at 25 guineas. Mr. Stubbs took one at 24 guineas, and Mr. Bradburne hired two at 21 and 25 guineas respectively. The average for the 30 Shropshire rams would be very nearly 13 guineas, and for the 90 ewes about 52s. 6d., the highest price made being 62s. 6d., and the lowest 45s. Mr. Preece, of Shrewsbury, conducted the sale.

**SALES OF SHROPSHIRE SHEEP.**—Mr. J. B. Lythall submitted at Birmingham forty shearlings and older rams of the Patentee blood, the property of Mr. Sampson Byrd. The sheep were low in condition. Prices ruled low, the highest being 30 gs. given for the hire of Model Patentee, a grand four-shear, let last year at £90 6s., and in the previous year at £45. The next highest figure was 17 gs., and others followed at 15, 14, 13, down to 6 gs.: the average for the twenty disposed of being £112 12s. 5d.; the remainder, owing to the very small attendance, being withdrawn.—Mr. Horley's Sale: The two best shearlings sold were secured at 30 and 25 gs. respectively, for Mr. J. L. Naper, of Loughcrew, Ireland. Mr. Brown hired No. 3, at 21 gs., which were the highest figures made. Two or three only were passed, and the forty sold and let averaged very nearly £11 each. The ewes ranged from 40s. to 57s. 6d., averaging 50s. each. Mr. W. G. Preece, of Shrewsbury, conducted the sale.—The Shrewsbury Sale: The breeders of Shropshire sheep held their annual sale of rams at Shrewsbury on July 28, when some of the ram breeders put in an appearance. Very few changed hands, prices ranging from 5 to 10 gs., until the Messrs. Crane's sheep entered the ring, when Mr. Bradburne gave 41 gs. for the hire of Crosswood Hero, second prize two-shear at Leicester; and Mr. Green, of Marlow, followed with 36 gs. for the hire of the first prize shearing Earl of Leicester: 18 gs. was the highest figure for any of the others, and several were passed.—Mr. Henry Smith's first lot was let at 17 gs. The next was secured by Lord Chesham at 18 gs.—In Mr. Evans's lot, of which the first prize shearing at Bury was let to Mr. Masfen at 86 gs.; the second at Bury to Mr. Harding, at 26 gs.; and the highly commended at Bury, and first at Leicester, to Messrs. Crane, at 85 gs. One shearing was let at 35 gs.; another sold at 42 gs.; and others followed at 19, 18, 14, 12, down to 6 gs.—Twenty guineas was given by Mr. Alsager for Mr. Thornton's five years old Volunteer.—Mr. Horton's averaged about 10 gs. each. Mr. Mansell's lot included three Royal winners, and three commended sheep, which helped to make up the high average of £16 8s. for thirty sheep, although no single sheep went very high, 44 gs. being the top figure, given by Mr. C. S. Bigge.—Mr. Griffith's highly-commended shearing was purchased by Mr. Horley, at 52 gs., after sharp competition.—Lord Penrhyn's two-shear, also highly commended at the Royal Agricultural Show, at Leicester, went at 27 gs. The sale was conducted by Mr. Preece.

**THE YORKSHIRE RAM SALES.**—In an ordinary year these meetings would now have been at their full height. This year, the extraordinarily early harvest and the drought have caused a scanty attendance at some of these annual gatherings. Some of the breeders, too, have avoided a fixed day of letting, and notably Mr. Barton, of Barton. He has sold for a long price to Mr. B. Metcalfe, of Malton, two of his prize sheep for exportation to Prussia. These are the "Scarborough," the Bridlington, Driffield, and Scarborough prize shearing; and "Tatton," a descendant of "Sir Tatton." On Monday last, Mr. R. Fisher held his annual letting of rams at his farm, at Leconfield. Considering the extreme dryness and heat of the weather for many months, the consequent barrenness of pastures, and the scarcity of turnips, there was a very good attendance. Mr. Coupland, of Cherry Burton, was the auctioneer. Ninety rams were submitted for competition. Mr. G. W. Langdale's rams were offered for sale at Leconfield Park House, on Wednesday, by Mr. B. Marshall; and notwithstanding the very thin attendance, consequent upon the forward state of the harvest, and the scarcity of turnips, good prices were realised. Mr. Richardson, of Arnold, secured the principal ram for £14, and the average price of the lot was about £8. At the Highfield-house letting Mr. Stamper had 30 shearlings, and the upshot price was £5. Notwithstanding the various drawbacks only five sheep were turned out of the ring unlet. There was a strong run for the Bridlington prize sheep. No. 3 at last went to Mr. Topham, of Rowgate, Wolds, for £13 15s. for the season; No. 4 to Mr. Johnson, of Brigham, for £18; and No. 6 to Mr. W. Hall, of Thirsk, for £14. The highly-commended shearing at Bridlington went to Mr. Chick, of Whitwell, for £13 5s.; and Mr. M'Laughlin, Helmsley, secured a match for him at £13. The other selected shearlings went to Mr. Leece, Fryton, £12; and Mr. Lett, Scampston, £9 5s. The shearlings on the whole realised an average of about £8 10s. per head. The two-shears were not quite so well taken, and the

average did not reach more than £7 5s.; No. 31, the highly-commended Yorkshire shearing at Thirsk, went to Mr. T. Green, of Rookdale, at £16. Mr. Grey, Stonegrave, was next highest for No. 35, at £10 5s. There were only six of the aged sheep let, the range being from £5 to £8.

**THE ELSTON SHEEP SALE.**—Mr. W. B. Canning, of Elston Hill, Shrewton, having resolved to discontinue the exhibition of stock, his Hampshire Down flock comes to the hammer. The sale of the first portion, consisting of 225 ram lambs and 35 rams, took place on Friday last. During the last few years Mr. Canning's sheep have taken no fewer than 23 prizes at the exhibitions of the Royal Agricultural Society and the Smithfield Club alone. No fewer than 216 lots were offered, but not a single one was passed unsold, and the prices realised were, on the whole, considered good. The sale commenced with the ram lambs, which were sold in singles and pairs, there being altogether 181 lots of these. The highest price realised was thirty guineas, which was given by Mr. Compton for a lamb; Mr. Mills gave 20 guineas for one and 13 guineas for another; Mr. Simpkins paid 19 guineas for one; Mr. Brown 16 guineas; Mr. Woolley bought three, one at 18, one at 15½, and the other at 14 guineas; Mr. James Rawlence bought a pair at £27 6s. The other prices realised varied from about 13 guineas down to about 4 guineas each. The two-teeth rams were next sold. Of these there were 32 lots, and for one of them Mr. Lawrence gave 40 guineas. Others were sold at 13 guineas, 12 guineas, 9 guineas, 8 guineas, 7 guineas, 6 guineas, 5 guineas. Two four-teeth and one six-teeth ram completed the lot offered for sale. The sale of the remaining ram lambs, together with 1,900 ewes and Chiltern lambs, is announced for Wednesday next.

**BINGLEY HALL SALE OF SHROPSHIRE SHEEP.**—Mr. Lythall's annual sale of Shropshire rams and ewes was held at Bingley Hall on Thursday. Among the buyers were agents from Dantzic and Australia, who were purchasers of ewes at a high figure. Of the rams, Mr. Lythall's, of Radford, near Leamington, averaged from 6 to 13 guineas, Double X, a four-shear, being let for the season for 13 guineas, Lord Ducie being among the purchasers in this lot. Of Mr. Yates's lot of rams, the highest price realized 30 guineas. Mr. Pilgrim, of Burbage, Hinckley, sent about half-a-dozen shearlings, the prices of which were from 6 to 10 guineas. Mr. Nock, of Sutton Maddock, near Shifnal, had a lot, the pick of which was purchased by Mr. Zachæus Walker at the sum of 28 gs. Mr. Randall's lot only realised from 6 to 9 gs. each. Ld. Wenlock's stock did not meet with approval, and no sales were made; but Lady Willoughby de Broke found ready customers for her rams, at 26 guineas, 21 guineas, 10 guineas, and 6 guineas. Mrs. Beech, of The Hattons, sent nine well-grown animals, which realised from 6 to 13 guineas each. Mr. King's lot were withdrawn. Mr. Parker's lot averaged from 6½ to 15 guineas; and Lord Sudeley's very useful animals averaged about 5 guineas each. The ewes were rather diversified in their character. Mr. Yates's lot realised from 37s. 6d. to 76s. each, Mr. Brawn's from 32s. to 42s., Mr. Nock's from 42s. to 52s. 6d. each, Mr. Jenkins's from 35s. to 40s., Mr. Pilgrim's 64s., and Mr. Beach's from 43s. to 50s.

**MR. G. M. SEXTON'S RAM LETTING AND SALE.**—Fifty rams and ram lambs (twenty-five of each) were offered for letting, the upset price being in each case five guineas, but comparatively few were let. Of the ram lambs only two were let, but the shearing rams went off somewhat better. The highest price was £11 6s., another sheep made £10, another £8 10s., and another £7 15s.

**Mr. T. BROWN'S SALE OF NORFOLK LONG-WOOLS.**—Seventy ram-lambs were let, averaging five guineas; eighty shearlings, varying from five to sixteen guineas, and averaging £7 18s. 8d.; and four two-shears, £5 12s. 10d.

**HATCH WARREN STOCK SALE.**—The second annual sale by auction of ram lambs, rams, and breeding ewes, belonging to Mr. Francis Budd, took place at Basingstoke. The sale commenced with the offer of some shorthorn heifers, in calf, which averaged about 14 guineas each. Some ram lambs, to let, averaged about £11 each. Of several two-tooth Hampshire Down rams one was knocked down to Mr. Crimble at 95 guineas. The ram lambs realized quite fancy prices for the season, and one ram was, after great competition, knocked down to Mr. Pyke, of Dummer, for 32 guineas.

## REVIEW OF THE CORN TRADE DURING THE PAST MONTH.

After one week's continuance of hot and dry weather, rain has gradually fallen, till towards the end of the month we had an abundant supply. Harvest-work was sufficiently forward in the midland and southern counties to be safe from damage; but in Scotland many farmers were sadly hindered by the wet, which occasioned some sprouting among samples. The whole country was, however, in such urgent need of abundant rains for the dried-up pastures, all standing green crops, and the operations of the plough, that the change has been of universal benefit, and verdure has again returned to every parched place. The fear that the cattle must be forced off for want of keep has ceased, and vegetables, which had become alarmingly dear, have a chance of being ere long abundant and cheap. The drought has disappeared also in other countries just in time to have a renewed growth before winter, and so the threatened calamity has ceased. Supplies of the new wheat have become plentiful, and everywhere, excepting on the light lands, the crop turns out beyond expectation. But spring corn has suffered generally, and its extent is not yet ascertained. Commissioners appointed to investigate the harvest tell us we have grown 100,000 qrs. more wheat than usual, and that our average this year will be 4 qrs. 2 bush. to the acre. It may be so, and we shall be glad to find it is. But one thing is certain, that we have begun a very liberal use of the new crop one month sooner than in ordinary years, which is about equivalent to a claim of nearly two million quarters, which if lessened by an extra growth of 100,000 qrs. would reduce it to about 1½ million quarters to be deducted from the extra abundance of this year. And it must be borne in mind that Spain and many parts of Russia have severely suffered; while everywhere, even in Hungary itself, old stocks were brought down to their minimum. We may therefore have fluctuations dependent on the greater or less supplies farmers may send; but we do not anticipate those low prices which some journalists prognosticate, whose sole object is to please the public. Changes have occurred this month, leaving the balance against prices 1s. to 2s. per qr. A very low rate would immediately bring speculators into the market, the keeping qualities of the crop being splendid. France suffering more than ourselves from the drought, it is doubtful whether that country has grown above an average, and at any rate the prices there are beyond a parity with our own. Accounts as yet from America are in favour of the crops, abating heavy losses through rust in the South and North-west. The following prices were recently quoted at the places named: White wheat at Paris 63s. 6d., red 58s.; at Bordeaux, white 62s.; red at Louvain 61s., at Liege 59s.; Brussels the same; also Holstein red at Berlin, 57s.; choice white at Danzig, 62s. to 63s.; in Spain, 70s. to 76s.; the best red at Pesth, in Hungary, 44s.; soft wheat at

Algiers 59s. hard, 51s.; Behara at Alexandria 36s., Saidi, 37s. 6d.; spring wheat at Montreal, 53s. 4d.; ditto No. 1 at New York 54s., No. 2, 52s. per 480lbs.

The first Monday opened on a moderate supply of English wheat, but there was a large arrival of foreign. The show of samples on the Essex and Kentish stands was less than expected, but it consisted chiefly of the new crop, in fine order, and of extra quality. After some demur as to a decline, factors consented to a reduction of 1s. to 2s., when free sales were made. In foreign there was very little passing; but to sell in quantity, it was necessary to give way to about the same extent. With few arrivals off the coast, prices were about maintained. Many places in the country being still under the influence of former declining markets, were lower, from 1s. to 2s. per qr.; but some reaction appeared at Ipswich, Birmingham, Newark, and Manchester, and these places reported an advance of 1s. to 2s., and Saturday's markets were generally 2s. to 3s. per qr. dearer. In Scotland little difference was noted, Glasgow and Edinburgh making no change. Dublin, however, noted a decline of 1s. to 2s. per brl. in new wheat, old being dull.

On the second Monday there was an increased supply of new wheat, but a great falling off in foreign arrivals. A fair exhibition, chiefly of new samples, was made on the Essex and Kentish stands; but the influence of the last country advices was felt, and prompted millers, both town and country, to operate freely, which they did at an advance of 2s. to 3s. per qr. The business in foreign was also improved, and all descriptions sold at 1s. to 2s. per qr. more money. With increased arrivals of floating cargoes, prices were well maintained. The cheerfulness of the London advices produced their usual effect upon the country; and the advance reported, say 2s. to 3s. at the Metropolis, was realized in most places, though some were less firm. On the other hand, Newark, Newbury, and Sleaford made the rise fully 3s. The heavy rains in Scotland, as well as advices from the South, were favourable to prices, and Glasgow noted an improvement of 1s. per boll or 2s. per qr. Foreign wheat at Dublin rose 3d. to 6d. per brl., but on native produce there was no change.

On the third Monday's market there were fair English arrivals of wheat, but not of foreign. This morning's exhibition on the Kentish and Essex stands was the best of the season, and the slowness of millers in the early part of the day gave signs of a reaction downwards. Eventually about 2s. less was taken for new samples; and had there not been buyers from Yorkshire on the spot, the reduction might have been greater. Foreign wheat was a slow sale, at about 1s. per qr. less money; but floating cargoes were firm.

On the fourth Monday there were fair arrivals of English wheat, with moderate supplies from abroad.

This morning's show of samples from the near counties was small. The trade had more activity than on the previous Friday; yet it was found necessary to accept 1s. to 2s. less money. The foreign business remained retail, with quotations for the most part unaltered, though some factors were willing to take a reduction of 1s. per qr. Country advices this week were mostly rather lower, though Liverpool was up 2d. to 3d. per cental on Tuesday.

The imports into London for four weeks were 25,498 qrs. English wheat, 68,122 qrs. foreign, against 11,437 qrs. English, 136,536 qrs. foreign for the same period in 1867.

The London averages commenced at 62s. 5d., and closed at 60s. 7d. The general averages were 62s. 9d. at the commencement, and fell to 55s. per quarter.

The exports for four weeks from London were 700 qrs. wheat, 279 cwts. flour.

The imports into the kingdom for four weeks ending 16th August were 2,179,008 cwts. wheat, 191,268 cwts. Flour.

After such a heavy reduction in new wheat, it was not to be expected country flour would maintain its price. Norfolks and even the best marks declined gradually through the month, and finished with a more decided fall, making a reduction in all of 4s. to 5s. per sack, fine qualities being procurable at 40s., and fair at 38s. Though the importation of foreign has only been moderate, it participated in the decline about 2s. per sack and barrel, excepting fine Canadian, which were worth about 33s. per barrel. The imports into London for four weeks were, in country sorts 56,179 sacks, in foreign 4,959 sacks 4,130 barrels, against 57,960 sacks English, 10,697 sacks 10,090 barrels foreign for the same period in 1867. No importations can now be made to meet English rates, either in Paris, New York, or Montreal.

Considering the earliness of the harvest, it seems surprising so little new malting barley has yet come to the English market, though there certainly is an increase beyond last season. It is possible the large brewers may, by their agents, have been securing for themselves whatever was fine, and so made short markets; or, with a doubtful crop, farmers may be hoping for better prices, though 44s. and 45s. have been paid here. Possibly they may be right, and eventually realize higher rates. But grinding sorts have given way all the month, till stale could be purchased at 28s., and sweet at 29s. per qr., while new 52lbs. fresh foreign has been offering at 33s. The low price of maize has the effect to keep down values; and when new foreign comes in greater plenty, we may yet see some decline. The imports into London for four weeks were 1,934 qrs. British, 32,094 qrs. foreign, against 919 qrs. British, 8,515 qrs. foreign in 1867.

Malt has been steady, at about 1s. per quarter decline.

The oat trade has exhibited a strange paradox in regard to its prices. Successive heavy supplies of Russian having poured in every week, prices of that quality have fallen about 1s. 6d. per qr. in all, 38lbs. quality being now only worth 23s. 9d., or of

fresh 24s.; whereas 38lbs. black Swedish were saleable at 26s. 9d. per qr.; and 40lbs. were hardly procurable at any price, heavy and fresh sorts having become so scarce. The new English, therefore, find a capital market, from their freshness and weight, but present high rates are hardly reliable. No revival generally in oats can be expected till the cessation of the Russian supplies. The imports into London for four weeks have been as follows: 2,195 qrs. English, 1,190 qrs. Irish, 250,344 qrs. foreign, against 3,085 qrs. English, 110 qrs. Scotch, 83 qrs. Irish, 228,855 qrs. foreign, for the same period in 1867.

The scarcity of English beans has kept this grain constantly pointing upwards, and but for the recent heavy fall in maize, this grain might have greatly risen. But as cargoes are preparing for shipment in Egypt, and present rates will draw from all quarters, we may expect as the English crop comes more freely to market, and foreign supplies increase, there will be a reduction in the value of this grain. The imports into London for four weeks in English were 1,107 qrs., in foreign 5,204 qrs., against 2,056 qrs. English, 6,777 qrs. foreign in 1867.

Hog peas as yet have only come to hand in small quantities, and farmers with a poor crop may think it will pay them better to use them at home than incur the expenses of carriage and commission, as the crop runs short and boilers come into competition with white Canadian, that there is little inducement to send them at present prices, say 44s. to 45s. Should contracts appear, these prices would be likely to improve; while the value of old for horse feed, as a substitute for beans, must prevent much decline. The imports for four weeks have been 1,688 qrs. English, 4,558 qrs. foreign, against 883 qrs. English, 15,047 qrs. foreign for the same time in 1867.

During the month the imports of maize have been heavier than for a long time past, and there has been even more than a proportionate decline, its value having sunk down to 35s. per qr. for fine-coloured yellow sorts. By this reduction it has become cheaper relatively than barley and beans, and we cannot but think, as pig-feeding increases, some reaction will take place in its value, as there is no corresponding decline in America. The imports in four weeks has been 37,654 qrs., against 14,577 qrs in 1867.

The value of linseed has scarcely varied through the month, there having been a steady demand, with only moderate arrivals, say 29,452 qrs. in four weeks this year, against 18,508 qrs. in 1867. Cakes were raised in value by the drought, and are now tending downward, in consequence of the abundant rains.

The cloverseed trade, though necessarily on a small scale from the scarcity of stock, has been looking up, the drought in France having produced orders at New York. Trefoil has also become rather dearer, and trifolium has made rapid advance. Winter tares have been held at about 11s. per bush. Some new white mustard has sold at 13s. per bush., but sales were slow, and it was pointing downwards.

CURRENT PRICES OF BRITISH GRAIN AND FLOUR  
IN MARK LANE.

		shillings per Quarter.	
WHEAT, new, Essex and Kent, white	red	58	58
Norfolk, "Lincolnshire, and Yorkshire		58	58
BARLEY	34 to 35	Chevalier	38
Grinding	31	Distilling	36
MALT, Essex, Norfolk, and Suffolk	69	extra	70
Kingston, Ware, and town-made	69		70
Brown	69		54
RYE			40
OATS, English, feed	26 to 33	Potato	30
Scotch, feed	00	Potato	00
Irish, feed, white	23	Fine	27
Ditto, black	23	Potato	36
BEANS, Masagan	44	Ticks	44
Harrow	45	Pigeon	51
PEAS, white, boilers	43	Maple 46 to 48 Grey, new	45
FLOUR, per sack of 280lbs., Town, Households			50
Country, on shore	43 to 44		45
Norfolk and Suffolk, on shore			39

## COMPARATIVE AVERAGES.

WHEAT.			BARLEY.			OATS.		
Years.	Qrs.	s. d.	Qrs.	s. d.	Qrs.	s. d.	Qrs.	s. d.
1884...	64,702	43 6	1,361	28 1	2,891	23 0		
1885...	45,752	43 1	922	27 11	2,307	23 10		
1886...	53,532	50 2	581	34 9	1,832	26 6		
1887...	24,866	58 4	976	35 7	1,375	29 7		
1888...	62,823	55 0	843	43 0	1,437	30 4		

## AVERAGES

FOR THE LAST SIX WEEKS:		Wheat.	Barley.	Oats.
		s. d.	s. d.	s. d.
July 11, 1888.....		66 7	37 4	29 8
July 18, 1888.....		65 0	37 4	30 11
July 25, 1888.....		62 9	35 8	31 4
Aug. 1, 1888.....		61 1	39 8	30 5
Aug. 8, 1888.....		57 11	41 4	29 9
Aug. 15, 1888.....		55 0	42 0	30 4
Aggregate of the above.....		61 5	38 10	30 5
The same week in 1887.....		68 4	36 7	29 7

## BRITISH SEEDS.

MUSTARD, per bush., brown 14s. to 16s. white	12s. to 13s.
CANARY, per qr.	78s. 84s.
CLOVERSEED, red.....	56s. 64s.
COBBLERS, per cwt.....	20s. 21s.
TARNS, winter, new, per bushel	10s. 11s.
THEFOIL.....	21s. 24s.
RYEGRASS, per qr.....	26s. 28s.
LINSEED, per qr., sowing 65s. to 68s., crushing	62s. 64s.
LINSEED CAKES, per ton	£11 10s. to £12 10s.
RAPESEED, per qr.....	56s. 62s.
RAPE CAKE, per ton	£8 0s. to £8 10s.

## HOP MARKETS.

**BOROUGH, MONDAY, August 24.**—Our market is steady, with a fair demand for yearlings, the stock of which is now extremely limited. The quantity of the new growth already placed in factors' hands must now have reached from 1,400 to 1,500 pockets, late arrivals being of decidedly improved quality. Plantation reports received up to Saturday morning agreed generally as to the estimates of the new crop being unaltered; for while the good grounds continued to improve, it was noticed that the infected plantations in some districts were daily becoming worse. These calculations, however, have been to a certain extent set aside by the hurricane of the last two days, which is reported to have done immense damage in almost every direction, and will certainly curtail the expected yield. Continental accounts now estimate at half an average the yield in Bavaria, Bohemia, Alsace, north of France and Belgium. New York advices to the 6th instant report favourably of the new crop; trade is very quiet.

## POTATO MARKETS.

## BOROUGH AND SPITALFIELDS.

**LONDON, MONDAY, Aug. 24.**—The supplies of potatoes on sale at these markets are fairly extensive. Most descriptions have been in moderate request, at our quotations. The import into London last week consisted of 1,437 bags, 326 baskets, 5,540 sacks, from Dunkirk; 11 cases, 142 bags, 50 sacks Boulogne; 60 sacks Ostend, 29 bags Harlingen, and 598 bags from Rotterdam.

English Regents ...	6s. to 10s. per cwt.
Shaws ...	5s. to 7s. "
Jersey ...	5s. to 6s. "
French ...	5s. to 5s. 6d. "

**COUNTRY POTATO MARKETS.**—**BARNLEY** (Saturday last): Prices remained without alteration, round potatoes selling at from 16s. 6d. to 16s. 6d. per load, or 5lbs. for 4½d. **DONCASTER**, (Saturday last): A good supply of potatoes on offer, which met a moderate sale at late rates. Kidneys 7s. a hamper, round ones 6s. per hamper. **MANCHESTER**, (Saturday last): Potatoes 7s. to 16s., new do. 14s. to 18s. per 252 lbs. **YORK** (Saturday last): There were only moderate supplies, but prices were lower. Kidneys may be quoted at 1s. 4d., and round potatoes from 10d. to 1s. 2d. per peck.

**CARMARTHEN BUTTER MARKET**, (Saturday last).—On account of the farmers' rents falling due next week there was rather a large supply of Butter in our market this day, which sold at 1s. 0½d. to 1s. 0¼d. per lb. This is only a temporary fall, and we expect to see Butter higher next week, as it is undoubtedly scarce in the country.

**CORK BUTTER EXCHANGE**, (Friday last).—Ordinary: first quality 121s. to 118s., second quality 115s. to 112s., third quality 109s. to 106s., fourth quality 105s. to 102s., fifth quality 97s. to 94s., sixth quality 77s. to 74s. per cwt. Mild-cured: first quality 128s. to 123s., second quality 122s. to 113s., third quality 116s. to 113s. per cwt. 3rds, 4ths, 5ths, and 6ths of kegs 4s. per cwt. less. Currency—ordinary butter 10s. per cwt. less, mild-cured 10s. ditto, sponged butter 2s. ditto.

**SALISBURY**, (Thursday last).—Owing to the recent hot weather the supply of dairy produce was comparatively small, but of fair quality. There was a fair attendance of buyers, and nearly the whole of the Cheese was cleared off at an advance of from 3s. to 4s. per cwt. on the prices current a month ago.

**GLASGOW**, (Wednesday last).—The supply of Cheese rather less than usual; the demand brisk, and a good clearance was effected at improved prices. There were 1,926 Cheeses laid down, and about 84 tons sold. Cheddars, new 48s. to 54s.; Dunlops, new 46s. to 52s.; skim-milk, new 17s. to 21s.

## ENGLISH WOOL MARKET.

**CITY, MONDAY, Aug. 24.**—The trade in English Wool, both for export and home consumption, is almost at a standstill, and prices are altogether nominal. Stocks are on the increase, while the large quantities of colonial produce on sale further tend to depress quotations.

CURRENT PRICES OF ENGLISH WOOL.		s. d.	s. d.
FLENCES—Southdown hoggets.....	per lb.	1 3	1 4
Half-bred ditto .....		1 4	1 5
Kent fleeces.....		1 3	1 4
Southdown ewes and wethers .....		1 2	1 3
Leicester ditto .....		1 3	1 3
Sorts—Combing .....		1 0	1 0
Clothing .....		1 2	1 7

**BRADFORD WOOL MARKET**, (Thursday last).—Business in the Wool trade has not increased since our last report, but there is enough doing to maintain the value, and a healthy and firm feeling prevails. The better classes of Wool are chiefly in demand, and for these a steady consumptive trade is doing at fully recent quotations. Inferior Wools, which are less in request, are proportionately less firm; but holders are still looking for a better demand, and even higher price, and are neither disposed nor obliged, while country rates remain as firm as at present, to give way, even though business should continue restricted.—*Bradford Observer*.

**GLASGOW WOOL MARKET**, (Saturday last).—There is no improvement to note in this market. Matters still remain in the same quiet state as the previous week. Some few lots of laid wools have been disposed of at former rates, but white wools of all classes have only been sold on the most limited scale. With the upward tendency of cotton, however, it is expected the demand will shortly improve.—*F. H. M'LEOD*.

**LEEDS (ENGLISH AND FOREIGN) WOOL MARKETS.**—There are not many private sales of English Wool taking place, but stocks are held with great firmness, as it is hardly possible to replace them in the country at former rates. The consumption of most kinds of colonial Wool is well maintained, but the supply of all sorts is so abundant that prices are rather lower, and are not likely to improve much.

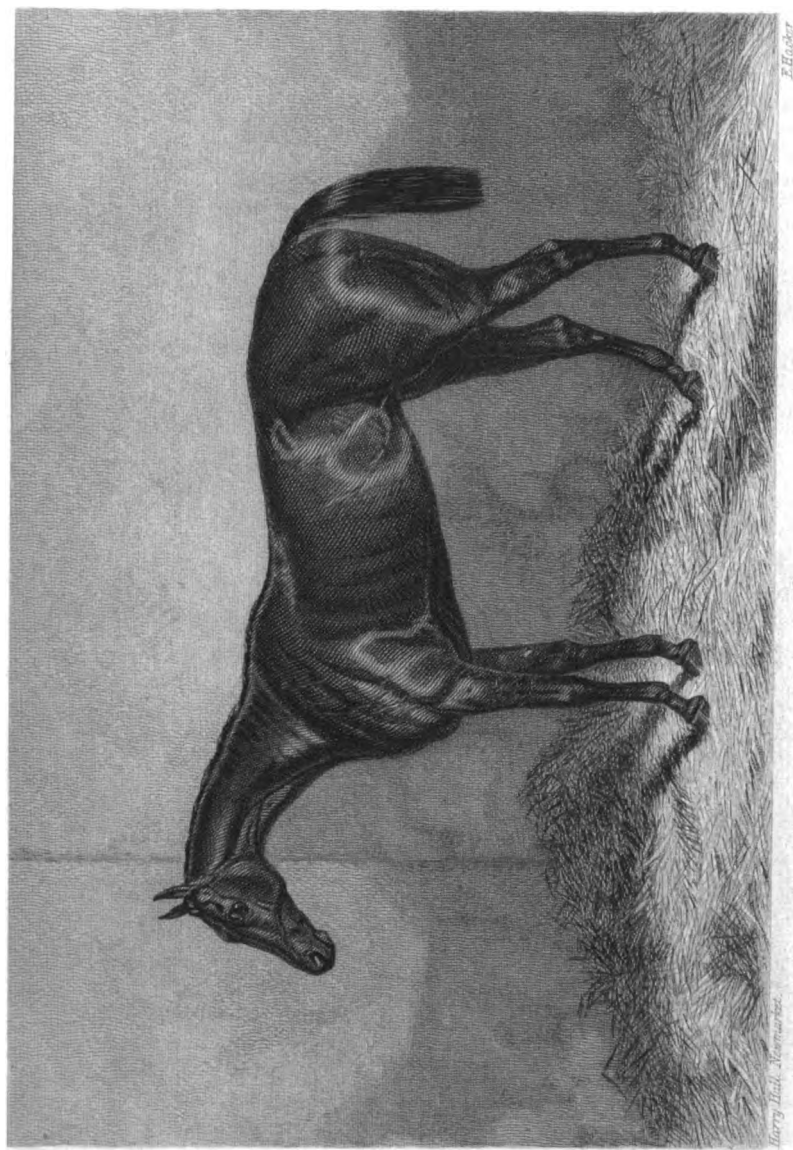






## *Porker 2nd*

*London Published by Robinson & Threlford, 205, Strand Road*



*Formosa*  
*A the young blood gilt, the property of Messrs. Graham.*

London: Published by R. Harrison & T. Ward, 20, Strand, 1808.



# THE BRITISH FARMER'S MAGAZINE.

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NO. CXXIX.

## PLATE I.

### VICTOR 2ND; A PRIZE BOAR.

THE PROPERTY OF MR. R. E. DUCKERING, OF NORTHORPE, KIRTON-LINDSEY, LINCOLNSHIRE.

Victor, 2nd winner of a first prize at the Royal Show at Leicester, in July last, was bred by Messrs. Duckering, and is by Cultivator, dam Countess of Leicester. Victor 2nd has been exhibited at eighteen meetings, and taken thirteen first prizes and five seconds, with two Medals. His sire Cultivator was shown at twenty-seven Shows, and

took twenty-nine prizes including two silver Cups; while his dam Countess of Leicester won twenty-four prizes. Victor is from the Northorpe breed of Lincolnshire Improved large pigs, which Messrs. Duckering have shown this season since June at nineteen Shows, and have obtained 114 prizes including four silver Cups and four Medals.

## PLATE II.

### FORMOSA; A THOROUGH-BRED FILLY.

THE PROPERTY OF MR. W. GRAHAM.

Formosa, bred by Mr. Cookson in 1865, is by Buccaneer out of Eller, by Chanticleer, her dam by Tomboy—Tesane, by Whisker—Lady of the Tees, by Octavian.

Buccaneer, bred by Lord Dorchester in 1857, is by Wild Dayrell out of Cruiser's dam, by little Red Rover. Buccaneer came out in Lord Portsmouth's colours, winning as a two-year-old the Mottisfont Stakes at Stockbridge, the July, and the Molecombe, and consequently wintering as a leading favourite for the Derby, for which he finished well up only. In the year following he won the Royal Hunt Cup, and some other performances went further to show that he should have been about the best horse of his year. In 1863, Buccaneer stood at Lord Portsmouth's seat at Hurstbourne Park, in Hampshire, and in 1864 and 1865 was with Mr. Cookson at Neasham in the north, where and when, from being a terrible savage he was sold to the Austrian Government, before ever we had a taste of his quality. His stock came out in 1866, with five two-year-old winners—Captain Kidd, The Miller's Maid, Pirate Chief, Plunder, and Tortuga. In 1867, the list was much extended with Albatross, Banditto, Beatrice, Brenda, Cuckoo, Formosa, Michael de Basco, Paul Jones, Retirement, See-saw, and Yardarm, to be put to his credit; while during the present season such running as that of Formosa and Paul Jones must go to make Buccaneer the most fashionable sire of the day.

Eller, bred by the late Admiral Harcourt in 1856, was in the field for the Oaks; but she was no great performer, and only once got her head in front. She was subsequently transferred to Mr. Cookson's stud, where she threw a dead foal by West Australian in 1861. Exceller by Newminster in 1862, missed to the same horse in 1863, dropped Odd Fellow by Thormanby in 1864, Formosa in 1865, was barren in 1866, had a Punchinella (sold to Mr. Graham for 250 gs.), by Carnival or Maccaroni in 1867, when she missed to Lord Clifden, and has since been put to Maccaroni.

At the sale of Mr. Cookson's yearlings at Doncaster, in the autumn of 1866, eight out of the nine offered were by Buccaneer, and these eight made 2,130 gs., at an average of 266 gs., a pretty good one for an untried stallion. Formosa was the top price at 700 gs.; but nearly all the others have proved worth the money, and Banditto (300), Michael de Basco (300), Brenda (110), Paul Jones (100), Montbar (60) and Yardarm (51), have all been winners. Formosa was purchased for Mr. Graham, a gentleman whose turf career so far has been chiefly identified with another Oaks winner, Regalia.

Formosa, judged by her inches, is but a little one, for she reaches no higher than to fifteen hands one and a half, but she is capitally furnished, and full of muscular power. She has a pleasing head, with a good breadth of forehead, and a strong, slightly

crested neck, reminding one more of a colt than a filly. She has strong shoulders, a good middle, famously-shaped quarters, and unexceptionable legs, upon which she stands as firm as a rock. When mounted, with her head well up and her bold carriage, she walks away a very picture.

No mare has ever yet approached Formosa's performances in dividing the 2,000 gs. Stakes, and

winning the 1,000 gs. Stakes, the Oaks, and St. Leger.

Formosa is trained by Henry Wolcott, at Beck-hampton, who brought her to the post for all her great races in the finest possible condition. As a daughter of Buccaneer the mare is called after an island in the Chinese Sea, a very stronghold of pirates,

## THE VALLEYS OF THE TAMAR AND THE FOWEY.

BY CUTHBERT W. JOHNSON, F.R.S.

The material influence of temperature and the rainfall upon the agriculture of a district, is nowhere more marked than in the Cornish valleys of the Tamar and the Fowey. It is in these picturesque valleys that the tourist sees an abounding amount of grass-land, roots in abundance, but only a very moderate amount of corn. Let us note the meteorological conditions in which the fine county of Cornwall is placed, and compare them with those of other and more corn-growing English counties.

Now the mean temperature of the sea at the most easterly and westerly sides of our island and of the Thames, during the four winter months of November, December, January, and February, as given by Mr. Whitley (*Jour. Roy. Ag. Soc.*, Vol. iv., N.S., p. 41), is as follows:

	Nov.	Dec.	Jan.	Feb.
Great Yarmouth.....	46·9	41·2	37·1	39·2
Scarborough .....	48·0	43·5	40·5	41·2
Thames at Greenwich...	46·0	40·5	38·9	40·9
St. Ives .....	51·4	48·5	46·4	48·5
Falmouth .....	52·0	48·0	50·0	48·0

We thus find that the winter mean temperature of the sea on the Cornish coast is from about six to ten degrees higher than on our eastern shores.

Then let us trace with Mr. Whitley the average annual amount of rainfall from Penzance through Cornwall by way of London into Norfolk. The average amount in inches we find to be as follows:

	Inches.
Penzance ... ..	44·5
Truro ... ..	42·7
Falmouth ... ..	41·2
Bodmin ... ..	41·0
Itchen Abbas (Hampshire) ... ..	28·6
Greenwich ... ..	24·9
Epping ... ..	26·3
Norwich ... ..	26·5

With a greater average rainfall by about fifteen inches than our eastern counties, the agriculturist would reasonably expect to find Cornwall a grass-producing land, which would produce more meat and less corn than was required for its inhabitants. When he explores this beautiful county he will find these reasonable conjectures fully verified. He will notice its hillsides well tenanted by fine flocks of sheep and excellent herds of Devon cattle, all in thriving condition. He will also speedily remark, that although the Cornish farms are commonly of a small extent, yet all looks neat and comfortable. Very few symptoms of pauperism creep out. There is here an evidently independent, yet respectable, bearing in the labouring classes, which might well be imitated in other prosperous localities. The effect of the prevalence in Cornwall of the warm south-westerly wind, the great rain-bearing current of our island, has been carefully traced by Mr. Whitley. The amount of water which it showers over

the county, varied by the elevation of the land, naturally influences its system of agriculture. The detail, as given by Mr. Whitley, I need not attempt to vary. We must consider, as he remarks, that "the rain-bearing wind is almost wholly from the south-west: the other winds rather act as condensers to deposit the moisture, than as carriers to bring it. Thus in Cornwall it very commonly happens that a heavy but transient rainfall takes place on a sudden shifting of the wind to the south-east, and on referring to the register of the weather for the past fourteen years, I find that there were forty-five days in which the amount collected exceeded an inch, and in the majority of cases the heavy rain was thrown down by a south-east wind. Only twice during the same period did an inch of rain fall with a north-west wind, and eleven times with the wind at the south-west. From this cause, and especially on our eastern lands, the moisture is often condensed so as to fall as rain, not under the direct action of the wind which brought it, but by a shift of the wind bringing a current from a colder region. In tracing the rainfall over the rugged surface of the land, we find great variation in the quantity—often within short distances—resulting both from the relative elevation of the land, and the configuration of its surface. At the Scilly Isles, and at the Land's End, before the rain-clouds are much disturbed by land influences, the annual quantity of water deposited on the land is about 31 inches; over the varied surface of Cornwall below 800 feet in height, it is about 40 inches; driven up the slope of the granite hills of Bodmin Moors, where the clouds are first heavily tolled at heights from 1,000 to 1,400 feet, it increases to 60 inches. The low undulating country from Liskeard to Tavistock receives about 40 inches. Thus the rain clouds arrive at the great granite boss of Dartmoor, rising into hills from 1,000 to 2,000 feet in height, by which time they are partly drained of their contents, but still yield from 60 to 80 inches at different stations on the moor; curiously enough the wettest part yet ascertained being at Holme, on the eastern side of these hills. The low lying, rich, new red-sandstone soil of the Vale of Exeter is, however, greatly protected from excessive rainfall by the Dartmoor hills, the yearly amount of rain at Exeter decreasing to 38 inches. Along the low and open parts of the north-west coast of Cornwall and Devon, very much less rain falls than inland, and the barley grown on these districts is good in yield and quality; hence we may infer that, as only from 24 to 30 inches fall on these parts of the coast line, a few miles out at sea beyond the influence of the land, the rain is but little in excess of that on the eastern lands of England.

"Again, tracing the rainfall from the wide, open, and flat estuary up the Taw, where about 25 inches annually fall, as the valley contracts at Barnstaple, the quantity increases to 40 inches, and to upwards of 60 on the skirts and high land of Exmoor. On the southern slope of

these Exmoor hills there exists that peculiar combination of soil and climate which gives origin to the North Devon breed of cattle. In this district, the amount of rain at Castle Hill, on the west, is 43 inches; and at Hantabam Court, on the east, 48 inches. The soil is a friable brown loam, from the upper beds of the old red-sandstone; and the country is moulded into almost continuous hill-side slopes, and narrow valley flats lying from 400 to 800 feet above the sea. The climate is not favourable to the perfecting of the wheat crop, but the steady downfall of rain produces an abundance of warm, deep-seated springs, which supply the water for the catch-meadows of the hill-side, and the productive water-meadows of the valleys. The mountainous structure of the country, the abundant rainfall, the warm winters and cool summers, with the rich, sweet pasture of the sheltered combs and the hill-side meadows, give that activity of limb, beauty of form, soft silky skin, and aptitude to fatten, which characterise this favourite mountain breed."

From the prevalence of grass land the amount of straw for the use of the farmyard is by no means copious in Cornwall, and hence the supply of yard manure is but limited. And as there is a constant stream of live stock leaving the county, this would naturally lead to the gradual impoverishment of the land, if the drain was not restored from some other source. This is done by the Cornish farmers to a very large extent, not only by the employment of artificial manures, but by the use of the refuse matters of their great fisheries, and by the weeds and calcareous sands of their sea-shores.

The stranger is naturally rather at a loss at first to account for the vast employment of these bright clean-washed sands by the Cornish cultivators, a dressing for their land whose use dates from a remote period. The chemical composition of their soils, and of the sands with which they fertilize them, serves however to explain in a great measure the phenomenon. By far the greatest portion of the soils of Cornwall, rest upon, and are composed of the decomposed rocks of the Grauwacke series. These in varying proportions are composed of fragments of quartz, flinty slate, felspar, and clay-slate, with a basis of clay-slate. From these soils, with the exception of what in a very small portion exists in the felspar, the salts of lime are almost entirely absent; and yet, as in some form or other their presence is essential to the growth of our crops, the needful supply is procured either from the sands of the sea-shore or from some other source. These sands usually abound in the finely comminuted fragments of sea-shells, which are composed with some small amount of organic matters, chiefly of carbonate of lime, with a very small portion of its phosphate. This sand, however, varies in composition in different parts of the Cornish coast; it is the poorest in the salts of lime in some of the northern coves of Cornwall; is much richer at Padstow, on the same coast, and is perhaps the richest on the southern shores of the county, as at Falmouth harbour, where the sand is almost entirely composed of powdered shells.

The sand is carried away from the places where it can be procured, wet with sea-water, for when thus moistened it is much preferred by the farmers. Tens of thousands of tons are thus removed from Padstow and other places. In some situations, where the roads down to the shore are far too steep for wheel carriages, as around Crackington cove and Tintagel, the sand is carried in bags up the sides of the cliffs on the backs of donkeys. In other cases, where the sand is only to be found in deep water the dredgers' services are employed.

The enormous amount of this calcareous sand employed as a manure in Cornwall was, some years since, alluded to by Sir Henry de la Beche (*ibid.*, vol. 3, p. 85): "One large source of the supply," he remarked, "is from the

harbour of Padstow. From a great sand-bank in this port (the Dunbar) it is calculated that about 100,000 tons are taken during the year, constantly employing about eighty men, in several barges. A large proportion of this is transported into the interior of the country from Wades Bridge, by the Bodmin railway and its branch, up the canal to Wineford." Notwithstanding the constant addition of sand thrown up by the sea upon the Dunbar, this large demand appears to cause its decrease; and by old residents we were assured that it had lost from six to eight feet in height during the last half century. Besides the sand conveyed inland by means of the river, large quantities are also taken away by carts, horses, and donkeys, from the sand-hills opposite Padstow. If we consider that Padstow harbour furnishes one-fourth of the sand employed for agricultural purposes in Cornwall and Devon, and estimate the ton as containing about 14 cubic feet, we shall have about 5,600,000 cubic feet of sand thus distributed. As may be readily understood, numerous local causes tend to vary the value of the sands along the coast. Generally speaking, the harder the coast, and the less the detritus that can be worn from it, the greater the proportion of the comminuted shells in a given portion of sand. On one portion of the Tamar there is an enormous accumulation of sea-weed, fine mud, and leaves of trees brought down and deposited by the upland waters of the river; and here, when we were there in September, several small vessels were, at low water, aground on the bank, and loading with their dark-coloured deposit for the use of the Cornish and Devon farmers. When, also, in the September of the present year, we made a pilgrimage to the beautiful little port of Fowey, we found some stalwart dredgers hard at work filling a barge with sand. Their vessel was moored in a spot where there is about twelve feet of water at low tide—and, by means of a kind of windlass and dredge, they were laboriously raising the sand from the bottom. Their vessel held about 15 tons of sand; and for this quantity, which they floated up the Fowey river some six or seven miles, to near Lostwithiel, they obtain twenty shillings—about one-third of which, it seems, belongs to the owner of the lighter. Close by where these dredgers were at work are the picturesque remains of the two forts built by Edward IV. at the entrance of the port, and from whence, in the olden time, a strong iron chain reached across the water, and closed the port of Fowey against all hostile vessels. Here the visitor will remark the same beautiful scenery, noble rock-bound shores, and hanging woods which adorn so many of the lovely bays of Cornwall and Devon. Here, too, are found the fine race of sailors, nursed in their great fisheries, who so largely supply the naval service of our country. These are the descendants of those gallant sailors who were with the Crusaders in Palestine; who sent from Fowey nearly 800 men to the Siege of Calais; and who, in after-times, when the Armada was off their coast, were so nobly and so victoriously led on by Drake and Frobisher, and Lord Howard of Effingham. Here, on the landing-place, a stone pillar marks the spot on which our noble Queen landed in 1846. She notices in her journal the steepness of the streets of Fowey, and the beauty of its port. Nature has, indeed, done much for this estuary; but Fowey is only now beginning to be known and visited. A railroad, to connect Fowey with the Cornwall railway, is nearly completed, and the town is gradually beginning to recover from its former deplorable wretchedness of being a Parliamentary borough.

It was, to a great extent, for the same purpose as the calcareous sea sand, that the Cornish farmers formerly employed lime as a dressing to their soil, to a much greater extent than at present. This they had to procure chiefly from Devonshire, for, as was remarked by Mr. Karkeek (*Jour. Roy. Ag. Soc.*, vol. vi, p. 441),

"The supplies of limestone in Cornwall are very inconsiderable, and of an inferior description. The farmers are chiefly supplied with it from the coast of Devon. About thirty years since it was ascertained that thirty vessels were regularly employed in carrying limestone from Plymouth to Cornwall, and every harbour, nook, or creek, from the Rame-head to the Land's End has had lime-kilns for the purpose of burning it; but the consumption of late has not been so great. The quantity of lime annually used in Cornwall, in 1843, was calculated to be about—

1,280,000 bushels from Plymouth.  
 200,000 bushels railed in Cornwall.  
 1,480,000

Lime is seldom applied in a caustic state except on peaty soils, but generally after exposure for several weeks to the air. There is no substance the application of which has been so much misunderstood as this. Its effect on our soils is, first to supply a valuable constituent when wanting, it being almost entirely absent from a large proportion of our clay-slate rocks; and next, to liberate the silica, the potash, and the phosphates, besides the carbonaceous matters produced from the decomposition of weeds, roots, &c., to be administered to the wants of vegetation. But by this last operation no equivalent was furnished to the land for that removed by the crop; and hence the continuance of the system of *liming* has been proved to be nothing else than a rapid method of removing those ingredients, and thereby of exhausting the soil. Thus, where a farmer breaks up an old pasture for wheat, and after burning (which is another means of exhaustion), applies from 100 to 150 bushels of lime per acre, the crop is considerably benefited by the lime rendering soluble the nutritive ingredients in the soil—not always the supplying of materials which the soil might require. For very many years this has been the custom in Cornwall in preparing for the wheat tillage; and for several years it was observed that those who carried the most lime on their estates raised the greatest crops, but soon those same parties complained of the impurity of the lime, because it did not produce the same effect as formerly—not understanding the fact, that its repeated application had exhausted the soil of those constituents on which it formerly acted."

The districts around the valleys of the Tamar and the Fowey are also of very considerable importance. Mr. Karkeek, some years since, described these (*ibid.* vol. vi., p. 415). As he observed in his prize essay, (when alluding to the country from Calstock to the Rame by the Tamar on the east, from Calstock to Liskeard on the north, to the Looes on the south, bounded by the English Channel), "The soil is generally light, free-working, and loamy, resting on red, grey, and variegated argillaceous slates, which are occasionally intermixed with sandy beds and with trappean rocks of 'dun-stones' and compact green-stones. A great breadth of this formation is found at Liskeard and Saltash. Immediately on the banks of the Tamar there is not much depth of soil, and it is of a clayey character, abounding frequently in bands of clay, which intersect the slates, making the land wet and springy in the winter. The farms vary from 50 to 300 acres; the majority under 100 acres. The course of cropping is to break three years' old pasture for wheat, then barley, or oats, followed by turnips or potatoes, concluded by barley and seeds. The breadth of green crops averages 15 per cent., and very frequently a few acres of rape and potatoes grown antecedent to the wheat crop, and a few acres of vetches between the wheat and barley crops. On the best cultivated farms, the barley or oats after the wheat is frequently omitted, and there appears an increasing disposition to adopt this

course by the best farmers. On the immediate banks of the Tamar, owing to the facilities which this river affords for supplying the metropolis of the district—Plymouth and Devonport—with vegetables and fruit of all kinds, the farmer is induced to grow a large breadth of potatoes, which in this locality precedes and prepares the land for the wheat crop. The corn crops average 18 bushels of wheat, 28 bushels of barley, and 42 bushels of oats per acre. Where the 'dun-stone' rocks prevail, *the yield is full one-third more*. Permanent pasture in this district averages from 8 to 10 per cent., and hay varies from 1 ton to 1½ ton per acre. Cattle average from 15 to 20 on 100 acres, from 5 to 10 in the year being fattened; breeding ewes from 30 to 40, fattening from 25 to 30 sheep on 100 acres.

"In the next district on the south coast, bounded by Liskeard and the Looes on the east, by the Fowey river on the north-west, and the British Channel on the south, the intermixture of trappean rocks with the slates which characterized the last district is absent. On the higher banks of the Fowey, the soils are partly clayey and partly loamy, resting upon a subsoil of deep rubble, consisting of clay, slate, quartz, and loose yellow clay. This kind of soil extends to the elevated country inland, both north and south of the Fowey, and is a very discouraging one to the agriculturist. Further south the soil partakes more of the loamy character, resting upon more compact subsoils, and this character may be applied to a very considerable portion of two or three parishes. The cliff lands are generally thin, producing scanty herbage, but owing to the extreme mildness of the coast district, sheep and other stock may frequently be seen grazing on the southern slopes, when snow and the severity of winter has covered and closed up districts further inland. There is a great quantity of woodland in this district; the Cornish elm, beech, and sycamore are found exposed in very high situations. The farms vary from 60 to 150 acres. The usual method of cropping is to break three years' old pasture for wheat, barley, or oats, and seeds, with about 8 to 10 per cent. of potatoes and turnips antecedent to the wheat crop. The corn crops average from 16 to 20 bushels of wheat, about 24 to 40 bushels of barley, and from 32 to 40 bushels of oats per acre. On the better-managed farms, where a greater breadth of green crops, particularly of turnips, is grown, the yield is full one-quarter more. The cattle average from 16 to 20 per cent., and breeding ewes from 25 to 30 per cent. on the acreage."

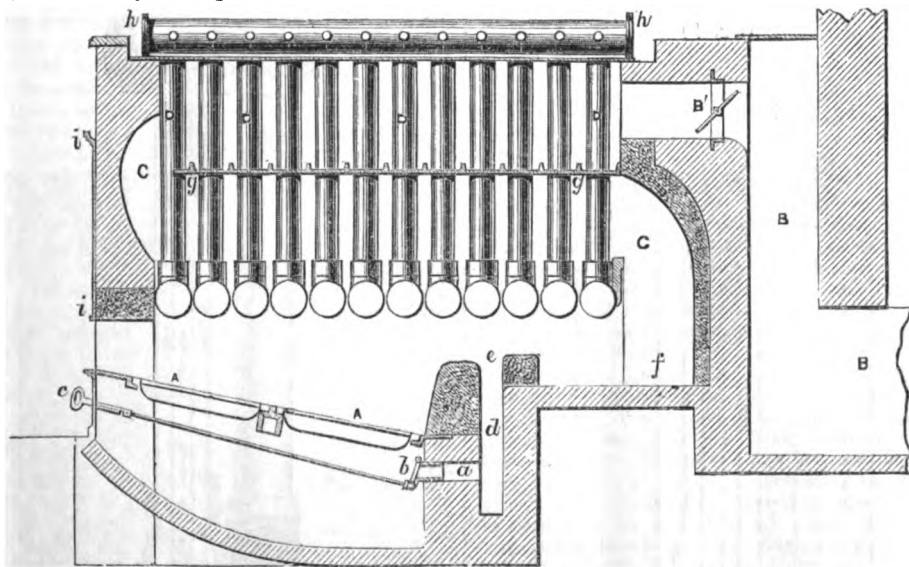
The agriculturists from other portions of our island will ponder over these things as he traverses this fine county. He may not, it is true, observe much of its arable farming that will interest him; the ploughing is not very good, the plough-horses rather inferior; neither will he, perhaps, much admire the large stone fences which divide their fields, or the rude construction of their field gates. But after making all these deductions, he will leave Cornwall with regret. He will there remark, amid its noble hills and mines, and sea coast, nothing upon a small scale. He will note, too, in the live stock of the county, a quietude and an air of comfort in its fine breeds of cattle, sheep, and swine, that indicate a well-doing land; and if the tourist gives himself time to become acquainted with the natives of these iron-bound coasts, he will find them every way worthy of the character for intelligence and kindness for which they have ever been remarked, and he will not confine this observation to any one class, but apply it to even the far greater number of the Cornish fishermen, miners, and farm labourers.



## THE FARM BUILDINGS AT LUTON HOO.

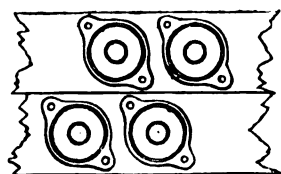
We concluded our last paper by pointing out the advantages of the very novel arrangement of a central steam boiler to supply a number of steam engines at work in localities specially adapted for the work which they have to do. The great difficulty in thus supplying steam to various engines at a distance from the source of supply arises from two causes: first, the condensation of the steam in the pipes; and second, the alternate expansion and contraction of the pipes which are put down to convey the steam to the various points where it is to be used. The first difficulty in Luton Hoo Farm Buildings is met by putting down a form of boiler by which a supply of dry or superheated steam is certain to be secured; this form of boiler being that recently patented by Messrs. Howard, Bedford. In boilers of ordinary construction a large percentage of moisture is sent over with the steam in passing from the boiler to the steam engine. The disadvantages arising from this moist steam, and the losses incurred by using it, were seen by engineers at a very early period in the history of the steam engine, and various plans were proposed by which to secure a supply of dry, or as it was then and is now termed superheated steam. The first patent was taken out so early as 1832, and although many patents followed this, the first, in quick succession; the subject, from some cause or another lost its interest, and for a long period it was much neglected by engineers. Of late years, however, they have again turned their attention

to it, and much improvement has been witnessed in the forms of apparatus and their details, by which the object in view is to be secured. Involving as the subject does so many points of high practical interest, it is somewhat surprising that no really elaborate investigations have been made to explain the phenomena connected with superheated steam. What indeed we only know in connection with it is, that by using it we effect a saving of fuel, and gain an increase of working effect in the steam. As a rule, all the plans proposed for getting dry steam to work the steam engine have been in the form of adjuncts to the ordinary form of boiler; but in this boiler all the practical disadvantage attendant upon the use of *additions* in the ordinary boiler are at once got rid of by the arrangements of the boiler, *which itself supplies the steam in a dry or superheated condition*. Independently of other advantages which the boiler possesses, our readers will at once see that this peculiarity gives a high value to it. The steam supplied by the boilers at Luton Hoo Buildings is so dry that, although it has to pass along a very lengthened range of pipes, very little condensation is found to take place. Of course this condensation is also prevented as much as possible by the mode adopted for laying the pipes, which will be described hereafter; meanwhile we present our readers with a few drawings illustrative of the boilers put down at Luton Hoo. Fig. 1 is a vertical longitudinal section of one of the furnaces and boiler. The chief



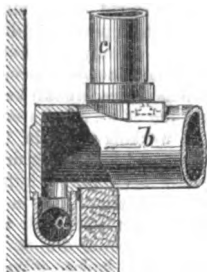
(Fig. 1.)

feature in the arrangement here illustrated, is the application of a series of vertical wrought-iron and horizontal cast-iron pipes, which in point of fact constitute the boiler. The pipes are arranged, as shown in part plan in fig. 2, so that the largest amount of contact of the heated air and flame from the furnace may be secured. The horizontal pipes *b b*, fig. 4, are of cast-iron, and are placed parallel to each other in line, as shown in fig. 1. These pipes are connected at each end to a horizontal pipe *a a*, figs. 3 and 4, one of these pipes being placed at

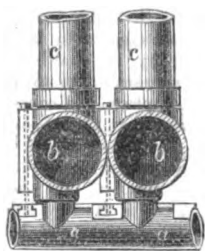


(Fig. 2.)

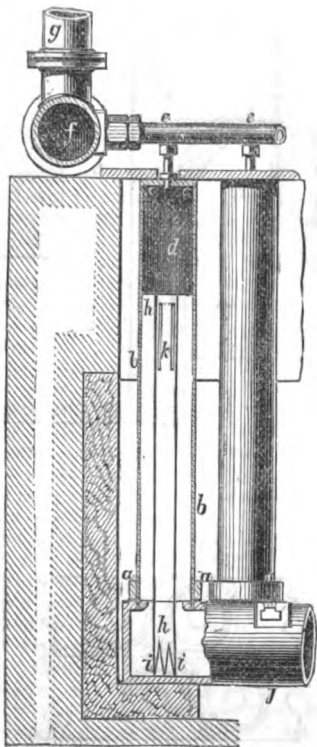
each side of the furnace, and running from end to end of the range of horizontal cast-iron pipes. These pipes are shown at *b b*, figs. 3 and 4, *c c* being the vertical wrought-iron tubes, which are let into caps *a a*, fig. 5, and firmly secured there by a very ingenious form of joint. The vertical tubes *b b*, fig. 5, are



(Fig. 3.)

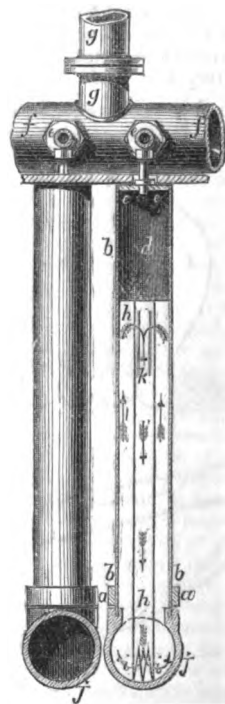


(Fig. 4.)



(Fig. 5.)

welded at top *c c*, and the steam from the upper part *d d* of the pipe is led by a small wrought-iron pipe *e e* fig. 5, which again conveys the steam to a transverse cast-iron pipe *f f*, which runs along the upper ends of the vertical tubes as shown in fig. 1; from this pipe *f f*, the steam is led off to the engines by the pipe *g*. The vertical tubes *b b* figs. 5 and 6 are each supplied with an interior tube of galvanized iron *h h*, the lower end of which *i i* rests upon the inner and lower side of the horizontal cast-iron pipe *j j*; the lower part *i i* of the pipe *h h* is vandyked, or have angular parts cut out, so as to admit of the circulation of the water between the inner and outer pipes. Still further to aid this circulation vertical slots *k k* figs. 5 and 6 are made at the upper ends of the tubes *h h*: the arrows in fig. 6 show the way in which the water circulates in the annular space between the pipes *b b* and *h h*, and in the interior of the pipes *h h*. Another advantage obtained by the slots *k k* in the pipes *h h*, is that there is a wide range allowed for the water level to vary at, this range being limited by the distance between the upper and lower ends of the slots or openings *k k*, so that if the supply of water is not kept regularly up the same danger does not arise as in the case of ordinary boilers. By inspecting figs. 5 and 6 it will be seen that the tubes *b b* extend upwards for a considerable space beyond the height of the tubes *h h*, and consequently above the level of the water; this affords a space for steam, and by inspecting the section in fig. 1 the reader



(Fig. 6.)

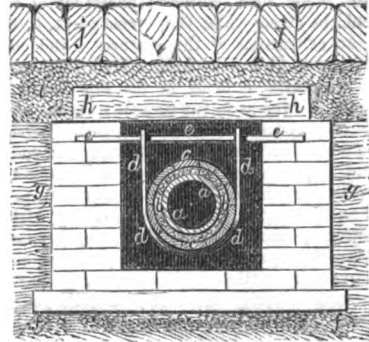
will perceive that the flame and heated air from the furnace A, in passing to the flue B B leading to the chimney, passes up by C and comes in contact with the upper ends D D D of the vertical steam pipes, thus drying or superheating the steam before it passes to the pipes *f f* and *g g* fig. 5 and 6; by this arrangement the advantages to which we have already alluded are obtained. The whole of the tubes, horizontal and vertical, are en-

closed in a brick chamber, the upper part of which is made of a series of cast-iron plates, and the front is furnished with a neat cast-iron plate, which covers the usual boiler appliances, as steam-gauge, &c., &c. The tubes being of small diameter, they can withstand great pressures—pressures very far beyond those to which they will under almost any conceivable practice be subjected. They have indeed been tested to a pressure of 1,200lbs., without showing the slightest tendency to give way. Again, the danger arising from explosion is reduced to a minimum, even should an explosion take place; for as each tube is a boiler, so to say, it is not likely that all the tubes would burst simultaneously, and one tube bursting would not be so dangerous as the bursting of a large ordinary boiler. The steam is raised with great quickness, and a large saving of fuel is shown by the use of this form of boiler.

We have already alluded to the difficulty in conveying steam a distance, arising from the alternate expansion and contraction of the steam pipes. This has been obviated or reduced to a minimum by the arrangement illustrated in fig. 7, and by which the expensive and troublesome system of "expansive joints" is avoided. The pipes (a), of cast-iron, are surrounded with felt (b), and this covered with lags of wood, and the whole are suspended by stirrup irons (d d) from horizontal bars (e e), which are suspended at the desired intervals by the side-walls of the brick conduit or trough in which the pipes are placed. The lower course of this conduit rests upon concrete (f f), the earth (g g) being rammed close up to the sides. The conduit is covered in by a stone covering h h, above which is placed sand i i, they being topped with the granite blocks j j, which constitute the roadways of the

building. The position of the range of pipes will be seen in the dotted line in the block-plan in Plate.

In addition to what has been already said as to the advantages of this system of central steam supply, we may



(Fig. 7.)

here add the following, as concisely put in a letter with which we have been favoured: "(1) Saving of space and the cost of buildings; one boiler house, one coal depôt, and one chimney suffices for all. (2) Saving of labour; one fireman is sufficient for the whole, instead of one being required for each separate engine. (3) The engines and management are more simple, force-pumps and appliances being dispensed with. Each engine is simply a cylinder; and the arrangement for producing rotary motion and steam being always ready, any one can be started or stopped without loss of time."

## THE FOOD SUPPLY FOR THE WINTER.

Now that it is known to absolute certainty that the root crop, however much it may yet improve, will be very much under the average, a considerable amount of anxiety is beginning to be felt as to how the live stock are to be got through the winter in anything like profitable condition. The scarcity, nay in many instances, the almost total loss of the turnip and mangold crop, combined with the light crop and consequent high value of hay, will cause this to be very difficult to manage in many districts; and to do so with even a moderate degree of success, where there is a large number of heads to be kept over, will require the exercise of much care and ingenuity on the part of the owner or his manager. Although extra care and attention will not increase the available supply of food that has been provided for use during the winter months, yet it is astonishing how much may be done in even the apparently small matter of permitting nothing to be wasted, and utilizing every substance capable of being used as food, such, for instance, as straw and inferior hay, which in ordinary years would be looked upon as fit for no other purpose than that of being converted into litter. In its proper place we shall notice the value of straw for feeding purposes, and the modes of preparing it, so that it shall become both a palatable and nutritious food for stock. Where the number of animals is large, and the supply of food but scanty, every beast beyond the number that it is calculated the farm will be able to maintain should be turned into money, it being better to sacrifice a little by selling at a time when there is but slow demand, rather than risk the loss of a great deal by pinching the whole of the stock, or by having

to purchase bulky food in the spring, when the probability is that every kind of cattle food will be so high as to render it absolutely impossible for them to make the merest shade of profit on the outlay for purchased food. In particular all weakly or unthriven things should be weeded out and sold (a rather difficult matter just at present); but still the first loss is the least in the end, as what a few such animals in a herd would consume without showing much improvement, would go a long way in supporting the remainder of the stock. The delightful rains that fell all over the country during the month of August, gave the pastures a good start, and from the luxuriance they now exhibit, it may fairly be inferred that grass will be abundant, and growth continue until stopped by frost, which change of weather may not occur until well on in October. This favourable feature in the character of the season has been a great boon to all stock-holders, saving keep, and lowering the price of all kinds of fodder to at least something near a reasonable standard. Many men will be disposed to make too much of the splendid growth of after-grass, and keep their stock rather long on it, a mistake not unfrequently made; but the temptation to do so is great during such a year as the present. Seven months of house-feeding requires a large store of hay-straw and roots, and when these are scarce it is almost impossible to resist keeping the cattle on the pastures longer than usual, and thereby shortening the winter by a few weeks. In the case of light stores this can be done, and no loss or perceptible deterioration of value be the result, but all animals intended for the butcher, and

in forward condition, should be removed to the yards and feeding-sheds the moment the grass begins to lose its succulence, as one month's house-feeding will scarcely recover the loss of flesh that results from a fortnight's semi-starvation. If it is not convenient to do so from the scarcity of house food, a liberal allowance of corn and cake should be given while they remain out, to compensate for the exhaustion of the pastures. Independently of the great benefit derived from a little judicious outlay for these concentrated foods in the superior thriving of the animals, or even as in the present instance, when it is given merely to enable them to retain their condition, the greatly increased richness of the manure, and consequent permanent improvement of the pastures, makes it well worth while to take a little extra trouble in procuring the food and placing it before the animals. Although it is considered by many farmers that sheep pay better for concentrated food, and effect a greater improvement on the pastures than cattle, we think it highly questionable whether such is really the case; as although from the sheep scattering the manure more evenly over the fields, the general greenness that follows is more noticeable, yet from our own experience we are strongly of opinion that the improvement of pastures from the droppings of richly-fed cattle is more permanent. It may be contended that in the case of cattle it is impossible to obtain such a minute and equal distribution of the droppings as is done by the sheep themselves without the slightest trouble on the part of the farmer, but by passing the ordinary chain-harrow at intervals over the fields on which the cattle are being fed, the manure can be wonderfully well distributed, and being broken up by the action of the harrow into the most minute particles, the whole of the surface receives the benefit of the increased expenditure, and will not fail to show, by a richer and more intense verdure, a thicker and earlier growth, and capability of feeding a larger number of animals, that it is grateful for liberal treatment. In this, as in almost every other department of farming, generosity on the part of the husbandman is returned with interest both in the present and in the future. Notwithstanding the shortness of keep during the summer, and the partially, or in some cases altogether unsuccessful growth of those crops intended for use in winter and spring, there seldom occurs a year in which so much opportunity has been given to make up for these deficiencies, the earliness of the harvest, and the genial showers and moist heat that accompanied them, giving abundant opportunity for getting in crops that will in spring yield a large amount of valuable food, while at the same time the ordinary rotation on which the farm is worked will not be interfered with. This has been especially the case with reference to sheep, and we find that all over the country flock-masters who follow the mixed husbandry system have been unusually busy, and to a very large extent indeed have taken advantage of the opportunity thus graciously vouchsafed by Divine Providence, by putting in those crops suited for the season hardy enough to withstand the vicissitudes of the climate and be ready for use early in spring. Of these crops there is considerable choice, and every man, whatever the character of the land he cultivates, whether light or heavy, fertile or the contrary, will find some crop amongst the many now known to modern husbandry and admitted to be useful, which will suit him. The advantages thus offered by the peculiarly beneficent season should induce every flockmaster to keep up his stock of sheep to the fullest number he calculates that with care and attention he can bring through, as from their extremely low value at present a large number can be bought in at a small expenditure of capital; while on the other hand, if he has bred them the low price at present ruling for stores is a double inducement to hold over, as no cheaper stock can be

bought in their place or with a better prospect of ultimate payment. Sound, healthy, well-bred lambs for instance are now selling freely at from 15s. to 20s. each. Now we consider that to a farmer who has a moderate amount of food for the winter and a fair prospect for the spring, on account of having sown a few acres of auxiliary crops, there could scarcely be a better investment. A small quantity of corn or cake given regularly, and a few turnips cut up by Gardiner's machine, with the addition of a little chaffed hay, will keep them in excellent store condition, let the pastures on which they run be ever so bare, and when spring comes round and the fleece is taken off, its increased weight will easily repay all the extra expense incurred in preparing the food, and a considerable part of the cost of the purchased food itself. Without hand-feeding it is scarcely possible to winter a large lot of lambs successfully, many deaths occurring from scour, induced by the watery nature of the food they are able to collect, and often from sheer starvation if the spring turns out protractedly severe. There is a vast difference between these two modes of management in a pecuniary point of view—the one being almost sure to leave a profit, even under the most unfavourable circumstances; while the other cannot do so unless under the most propitious conditions—such as particularly sound land, and a comparatively small number of animals for the extent of surface they run over. We strongly advocate the removal of all animals from the fields during the winter months, with the exception of sheep—that is their natural habitat, and being light, the land is not poached, or in any way injured by their treading, all the other stock of the farm being removed to the farm-yard earlier or later, according to the nature or exigencies of the season. For young animals, all their requirements in the shape of pure air, water, and exercise are fully met in the shedded courts or yards, as they are variously termed, which should be on every homestead, and without which no range of farm-offices can be called complete. In these the animals are sheltered from the cutting blast and pitiless rain, and during the coldest days or nights of winter and spring they can lie snugly ruminating under their comfortable sheds, instead of standing with their backs up in the form of an arch, perfect pictures of abject misery. We now proceed to review the most economical modes of feeding the house and yard-fed stock during the winter, and, as we observed at the commencement of this paper, that straw is a valuable aid at all times for this purpose, but pre-eminently so this season, we shall first notice its value, and the saving effected by its use. Without resorting to chemical analysis, but judging only from the teachings of experience, no practical man, who has had opportunities of judging, can fail to be struck with the great difference of feeding quality that exists between the straw of different varieties of corn, and also of that grown on land naturally fertile, and that which is the product of land the fertility of which is solely maintained by liberal treatment and good husbandry. Of the different varieties, the straw of the oat is the favourite, being highly-relished by both cattle and horses, and all thriving on it; that of wheat is the next valuable; and barley the least. So great is the difference in feeding value of firm juicy straw grown on land containing a certain proportion of clay over that of soft flaccid straw grown on the weaker description of soils, that on the former store cattle can be kept over during the entire winter on straw and water only, and come out for the grass in fine health and as thrifty condition as could well be desired; on the latter, when this is attempted, they are mere walking skeletons when the winter is over; and consequently when straw is to be the principal part of their food, they must get either a modicum of turnips in addition to the straw, or

a few pounds daily of some kind of cake. Not only can straw be successfully used in keeping one's store stock; but it may also, with great propriety and with excellent results, be given to fattening beasts during a considerable portion of the time during which they are tied up. When a large quantity of turnips is given the straw can be used with manifest advantage, being of a somewhat more astringent nature than hay; and many splendid animals, under these conditions, are fully finished without getting a bit of hay at all. Straw being, then, a valuable food in some cases by itself, but mostly in connection with other foods of a more succulent or concentrated character, it is obviously the duty and interest of every man who has stock to feed to secure his crops as carefully as possible, taking especial care that the corn shall not be built up too suddenly in large bulk, and so cause heating, in which case the straw becomes utterly useless for food; nor yet permit it to become too ripe before cutting, as then it is sapless and woody, and quite unfit to be used as provender. If from a fear of falling markets or other necessary causes it may be found suitable to thrash the greater portion of the season's crop almost immediately after harvest, every particle of the straw should be carefully secured, building up into handy stacks as soon as thrashed, and thatching at once, so that when required for use it shall be in the best possible condition. When circumstances are favourable to the thrashing being done at regular intervals during the winter, the full value of the straw for feeding purposes is then obtained, as when newly thrashed it is much better relished by cattle than after having lain over for some time, unless very carefully stored indeed. Mustiness should be carefully avoided, as when tainted no animal will eat it unless forced to do so by hunger. Even if they eat it, it does them no good, and if given to dairy-stock is almost sure to cause abortion. The personal supervision of the master is of great consequence in aiding economy of food, as many men are apt to fill up the racks and mangers, without the slightest regard to the capacity of the animals, being mostly animated with the idea of making sure that each shall have enough. The result, too often, is, that a good deal of waste occurs, most animals refusing to eat what has become tainted with their breath, and, when they can manage it, pulling it down and trampling it under their feet. In every farmery much care is taken with the corn, cake, and other concentrated foods, the whole being kept under lock and key, and, when given out, the quantities carefully weighed or measured, and usually placed before the animals by the master himself, or some responsible servant—particularly in the case of horses. This is as it should be; yet how frequently on the same farms do we see feeding substances almost equally valuable—hay most noticeably—left altogether to the discretion of the men, to the manifest loss, in too many instances, of their employer! With every prospect of hay being almost as dear during the spring-months as oats by the ton, and straw fit for feeding purposes correspondingly high, it will be well worth while to give increased attention to the prevention of waste, either by exposure to the weather while in the stack-yard, or when placed before the animals, giving only such quantities as they will be likely to eat up clean. Liberality then, when it consists in throwing large quantities of food before the animals at one time, is simply waste, "little and often" should be every man's rule, and when acted upon the stock will be benefited, and the farmers pocket saved more ways than one. For the prevention of loss by waste, for the better economy of valuable food, and for enabling the beasts to thoroughly assimilate their food and extract all the nourishment it contains, the machinist has come to the aid of the farmer, and by so doing has rendered agriculture a most important service. First, and probably most important of

all, we have the chaff-cutter, worked by steam, by horse, or by hand, according as the size or necessity of the occupation requires. It is scarcely necessary to say that the chaff-cutter should be one of the indispensable requisites of every farm, not on any consideration to be done without, and used regularly at all seasons. In practice, however, this is not really the case, as although of late years these machines have become very extensively diffused over the country, they are not nearly so common as they ought to be, nor so generally used amongst small and middling farmers as might be expected considering the advantages to be derived from their use. In conjunction with the pulper they become eminently useful, as when roots are pulped they can be mixed up with chaffed hay or straw of even middling quality, and when permitted to undergo a kind of incipient fermentation by being mixed together for 24 hours or so, the mass becomes so sweetened as to become extremely palatable to all cattle stores, feeding bullocks and dairy stock alike thriving on it. Crushed oats, Indian meal, linseed meal, ground oilcake, or any other substance in the shape of meal can be mixed with the chaff and pulp, either dry or boiled, and poured on it so as to form a mucilage, in which state the whole mixture is still more highly relished by the animals, and being so well prepared they can fill themselves quickly, and spend the greater portion of their time in repose. Thus by the use of these machines we have economy at the very outset, inasmuch as by their use we can utilize food of inferior quality by being enabled to mix it with other substances which render it palatable, and which could not possibly be done without its being previously reduced to a state of comminution. When the dry food used is of superior quality the animals have all the advantage of it, and their progress is correspondingly quick. In spring and early summer, when Italian rye-grass, tares, &c. are being given to stock, it is exceedingly desirable to mix such excessively green and succulent food with hay or straw, to counteract the looseness engendered by their watery nature; the mixing can only be done in a way that the stock will eat both, by putting the whole through the chaff-cutters, as when attempted to be given long, however well they may be mixed, the green food will be picked carefully out and the dry left behind. Excellent results follow this mode of preparing green food, and an increased number of heads can be kept by house-feeding, and increased fertility imparted to the soil by the large quantity of manure so made. There is to be sure the first cost of the machine, tear and wear, and the expense of working to be deducted from the profit; this however bears no comparison whatever to the beneficial results to be derived from their use, one season's trial being quite sufficient to convince any one of their value and the truth of this assertion. Many feeders who have been accustomed to supply their fattening stock *ad libitum* with turnips will, for the present season, have either greatly to lessen the number of animals they tie up, or resort to the more extended use of chopped hay, straw, corn-cake, and meal. It is surprising how well cattle will thrive with but a small proportion of turnips, when supplied with dry food of nutritive properties in sufficient quantity to make up the deficiency. So well is this feature in stall-feeding understood by some of the far-seeing agriculturists of the present day, that unless tempted by a very high price indeed, they will not sell their oats, preferring to give them to their stall-feds, and obtaining a much higher price by so doing than could generally be obtained if sold in the grain market. Wheat, barley, beans, and peas, when at low prices, can all be converted to the same use with excellent results. One of the most successful feeders we know, uses no kind of dry food but the flour of low-priced wheat; and the cattle he turns out are a source to him of both pleasure

and profit, and a credit to his management. When the quantity of turnips is so small as not to be able to quench the thirst of the animals, water must be allowed; and, although they will not drink much, still, for humanity's sake, if for nothing else, it should be (if not convenient to have it always within their reach) offered to them once a day, which will be quite enough to satisfy any beast which may be getting a quantity of turnips. Young cattle can be admirably brought through the winter with but a very small allowance of turnips, when supplied with chopped straw, or a mixture of hay and straw, with the addition of a little meal or cheap cake. For this purpose the green Danish rape-cake is very suitable, and, being so much cheaper than oilcake, a rather larger quantity can be given, without so much risk of the cost being greater than the profit. The results from feeding store cattle with rape-cake are highly satisfactory, the animals reaching the grass in fine health and blooming condition; and, if on grass of good quality, become fit for the butcher early in the summer. We think that young cattle should never be wintered carelessly, or allowed in any way to shift for themselves about the pastures, as is so frequently done; as a well-wintered beast is half-summered, and will keep up condition and even thrive and fatten on very indifferent pasture, if put on it well filled inside. A comfortably-kept store beast, rising two years, will often leave its owner 20s. a month for its keep. Considering the inexpensiveness of its food in comparison with that of stall-feds, the profit is larger, and should be a great incentive to farmers to treat their store stock with greater kindness than they do. How often do we see calves actually worth more money when they leave the pail than is got for them—or, than they are worth—as yearlings, after having been kept seven or eight months longer, and all through neglect, or through the mistaken supposition that they would be able to support themselves well enough on the pastures. The poor things are stunted in their growth; make no profit for their owner, and, if kept on the farm, take the whole summer to recover themselves. What a contrast do such animals present during the spring months to those which have received even a moderate degree of attention and the shelter of a shed or yard, and how differently do they pay! In connection with the feeding of young cattle and milch cows, there is another source of food on corn-growing farms, which we have not yet noticed, but which is of very great importance, and deserves more general attention than it receives. We allude to the chaff, which—when boiled with a small portion of turnips and a little light corn, or, in the absence of the latter, sprinkled with a little meal—makes excellent food, exceedingly nourishing, and highly relished by all the domestic animals. A small pailful of this mixture given when warm, morning and evening, to young growing beasts, with the addition of a little straw, keeps them in fine healthy growing condition; and a good feed, twice a day, to milch cows, enables them to keep up a full flow of milk; while the butter is of good quality for winter, the boiling

having neutralized all unpleasantness of taste and smell. It is surprising that while chaff is so carefully husbanded and turned to good account in many parts of the country, in others it is quite neglected, looked upon as a nuisance, and turned out to the yards to be trodden into manure. It is quite possible that this is not done altogether in ignorance of its feeding properties, and consequent value; but rather on account of some local difficulty in the way of preparing, the most important of which appears to us to be the high price or long carriage of fuel. In every district that we are acquainted with, where coals are plentiful and cheap, a boiler or range of boilers forms part of the indispensable fixtures on every farm, and during the whole winter the cooking of chaff and roots is carried on, and the farmers and their servants would positively not know how to bring through the stock, without the assistance of boiled food. On the other hand, as we retire from extensive coal or turf districts, and fuel becomes scarce and dear on account of the carriage, boiling chaff is either practised on a very small scale, or is altogether unknown. Whatever the nature or character of the food used in feeding stock for the coming season, there is one thing certain that it will be worth a good deal of hard cash, whether raised on the farm or purchased; and it will be incumbent on every feeder, who has his own interest at heart, to see that he gives expensive food to no ill-thriven, flat-ribbed, tough-skinned animal, quite incapable from its breeding, formation, and constitution of giving a profitable return for the expenditure of time and money entailed in the endeavour to make it fat. It is in such a season as the present, when keep is high, that the vast difference between animals of pure descent from at least one parent is forced upon the observation of those interested in such matters, compelling them if they have been previously neglectful to increase their diligence, and spare no trouble in improving their stock by the introduction of pure-blooded sires. Horses are now in full work, and should be taken from the grass; the cold nights that we may henceforth expect having an injurious effect on a hard-working horse, making the coat stare, besides the extreme aptitude to get cold when put out in a heated state after a hard-day's work. However he may be fed afterwards, the farm horse should be kindly treated for the first few weeks after being taken off the grass; a liberal allowance of oats mixed with a few beans and plenty of good hay, warming him, and hardening his flesh and muscle. After being accustomed to the stable, the hay may be substituted in whole or in part by good sweet oat-straw or bean-straw, on farms where these are grown; but if the horse is regularly worked, the corn must be kept up and given too with no sparing hand. One feed at least of pulped roots in the day, mixed with a little chaffed hay, and flavoured with meal, is a capital thing for a horse, keeping the digestive organs in good order, giving him a good coat, and assisting greatly to preserve him in good health and condition. J. S.

### THE DINNER OF THE SOCIETY.

"I wish the characters would leave off talking, and let the play begin!" Such was the commentary of a critic as the curtain fell on the second act of Sheridan's famous comedy, the *School for Scandal*. And at the agricultural festivals, just in high season, how often, after two or three hours of it from the cross-table, does one feel inclined to echo the remark, "I wish these people would leave off talking, and let the business begin!" It has been our hard fate to sit out one of these dreary entertainments, of which it may be as well

to give some description, if only in the way of a fearful example. The dinner was called for three o'clock, but it was an hour later when the chairman took his seat; while, as the company had assembled long previously, the chief object of the delay would be to allow the game and venison to get cold, and so to give a certain kind of consistency to the appearance of the tables. But if Her Majesty be remarkable for the punctuality with which she observes the specified time of any meeting she may honour with her presence, surely it is not unreasonable to

expect as much from a body of country gentlemen. The chances are that if three "sharp" were the rule ninety-five people out of a hundred would be in their places; as the great majority of these must leave again by trains which will wait for nobody. Consequently, the more time wasted the more the likelihood of a considerable part of the proceedings being enacted to empty benches. Our Chairman, when he did begin, seemed to see something of this looming in the distance, for he dwelt in the outset on the admitted fact that "brevity is the soul of wit," and referred with some very natural consternation to "the five-and-twenty speeches" which would have to be delivered! It never, perhaps, occurred to the honourable gentleman that the better way of unravelling this Gordian knot would have been to cut out a good half of the threatened addresses, and so he went at once very gamely into his work. Unfortunately, or fortunately, the chief table was exalted so much above the others, that the distinguished guests lived almost in another hemisphere; and it was but occasionally that anything they said could be heard in the regions below. As most of the speaking came from this very literally high table, the enjoyment of the scene was of course proportionately increased by the common people knowing little or nothing of what was going on. However, according to a very necessary guide, in the shape of a toast-list, the Chairman gave "The Queen," followed by "The Prince and Princess of Wales, and the rest of the Royal Family;" and then a very popular old gentleman, who was totally inaudible, was supposed to propose "The Army, the Navy, the Yeomanry, and the Volunteer services," in response for which two names were set down. But the first off, in utter defiance of the Chairman and his soul of wit, having gone bravely through the Indian war, the Crimean campaigns, King Theodore's discomfiture, and the Volunteer crisis, the Yeomanry Cavalry officer next due discreetly declined to have anything more to do with it, so that one of the terrible "twenty-five" came to count for nothing. Then Mr. Smith offered the very comprehensive sentiment embodied in good health to "The Bishops and Clergy of the Diocese, and Ministers of all Christian Denominations," for which an honourable and reverend gentleman, in evident dread of so great a responsibility, did not rise to reply, so that the duty devolved on the Parson of the Parish, who said he was old enough to remember the time when the toast would have been comprised in the words "Church and Queen"—a good old fashion that for more reasons it is to be hoped may be revived. In succession, somebody gave "The Lord-Lieutenant," mainly, as it would seem, because he was not present, and another Mr. Smith, "the High-Sheriff," with thanks to him for his non-attendance; and both these toasts having been "appropriately" acknowledged, a candidate for the county undertook to compliment "The Mayor, the Magistrates, and the Corporation of the Borough," as in doing so he managed to get into hot water with some of the townsmen, and so providentially pulled up short. The Mayor having made his speech, the Mayor's father came in for a turn, and being clearly an orator of no ordinary pretensions, went on to a running accompaniment of murmuring and shuffling that he complacently took for applause, until the demonstration resolved itself into a diametrically opposite expression of public opinion. By this time the room was rapidly thinning, but the Chairman, in offering "the toast of the evening," had contrived to edge in a few words about the cattle-plague, while the next speaker at the high table ingenuously confessed his surprise at having heard so little said about agriculture. Another from below declared that, had he not been in the secret, after sitting there for some hours, and seeing the occasion graced with the presence of a few ladies, he might have thought it some Social

Science gathering for encouraging the breed of silkworms, or suggesting improvements in the sewing-machine. The judge deputed to respond for himself and his fellows declined to enter into the merits of the Show so late in the evening; and the only man who essayed to speak to the real business of the day had to mount the table, and hurl his anathema at

Jove in the chair,  
Of the sky Lord Mayor.

Is it utterly hopeless to attempt to amend such a state of things as this? Is the dinner of an agricultural society still to continue a dismal and unprofitable burlesque? Will some little-great man be really offended should his name be omitted from the list, though the probabilities are that he is no speaker; or, if he be, that he knows nothing of what he is called on to talk about? Is it really necessary for the welfare of such associations, and the success of such celebrations, that the practical men shall be kept back, like the game and venison, until they be lukewarm, and satiety rules supreme? We think not. The case is not hopeless, or we should not have again reverted to it. Reform has already set in. The ice has been broken, and the Rubicon crossed. At the dinner in the Potteries the other day, Mr. Wise, the chairman, with an amount of moral courage that cannot be too much extolled gave the Royal and loyal and "customary" toasts in one single speech. And was any offence created by such a course? On the contrary, a right honourable gentleman and a member of Parliament, who rose to give "The Judges" immediately after "Success to the Society," said "he was sure that every one present would share the satisfaction he felt at the course pursued by their chairman, though he must confess that, even in these revolutionary days, this boldness had surprised him. To get through the bishop and clergy, the army and navy, and, in fact, all the civil, ecclesiastical, and military institutions of the country in a word, certainly startled him at first; but he felt and acknowledged the wisdom of that proceeding, and he hoped a similar course would be adopted at many future meetings." We hope so too, or these dinners had far better be done away with. As at present conducted they tend to little or no good purpose, and are rarely more than negative nuisances to all concerned—to the hapless magnates who have to speak, and the still more unfortunate people who have to listen.

This is something like what the toast list of an agricultural dinner should be:—

ROYAL: THE QUEEN, THE PRINCE AND PRINCESS OF WALES, AND THE REST OF THE ROYAL FAMILY.

LOYAL: THE ARMY, THE NAVY, AND THE CHURCH. THE HOUSE OF LORDS AND THE HOUSE OF COMMONS. THE LORD LIEUTENANT AND THE COUNTY MAGISTRATES. THE MAYOR AND THE CORPORATION.

SUCCESS TO THE AGRICULTURAL SOCIETY.

THE JUDGES.

THE EXECUTIVE—THE STEWARDS, THE COMMITTEE, AND THE SECRETARY.

THE PRIZE-GIVERS AND TAKERS.

THE CHAIRMAN AND THE VICE-CHAIRMAN.

The advantage of putting the Chairman's health as the last toast would be that this would tend to hold the meeting together; while of course he would "A said whot a owl to a said" in introducing the three first items on his programme. A Chairman should be expected to do no more; and any other good man, a smart M.P. for instance, might be selected to propose, and one, two, or even more speakers, according to circumstances, deputed to respond for the Judges and the Executive. The business would so promise to be over in good time, by no means an unimportant consideration; and we should be no longer treated to the melancholy spectacle of an honourable gentleman addressing his "few words more" to the remnant of a company utterly weary of the whole affair. Reform it altogether!



## THE DERBYSHIRE AGRICULTURAL SOCIETY.

## MEETING AT DERBY.

It is satisfactory to say, in the outset, that the suggestions made in our report of last year's meeting have been pretty generally adopted; and that this show is now very efficiently conducted. All classes appear to take an active interest in its success; while the very fact of the ground being so conveniently situate, in the very heart of the town, tends to give the citizens an additional stake in the welfare of the Society. This is not one of any great calibre, the competition being mainly confined to the county, or to subscribers; nevertheless, there were few of the sections but which were well filled; and, in such staple productions as milk, butter, cheese, and nag horses, the entries would have done credit to many associations of greater scope and pretensions. The judges thought so highly of the cheeses that they gave some additional prizes out of their own pockets; and the awards over a very good class of hunters were made in the presence of some thousands of spectators. This, to be sure, is not exactly the season, as it has happened, for showing dairy cattle; but Mr. Vale's first-prize lot of four cows made up a capital entry, of much the same stamp, with good milking qualities, although, at the same time, not so shabby nor mean in their appearance, as would seem generally to be a necessity with stock devoted to the production of milk and cheese. The dairy cattle were drawn either in four or pairs, a very good plan, as tending to give something of a notion as to the principle upon which a man's herd is cultivated. To the honour of the Short-horns be it written that the Derbyshire milkers are chiefly of this breed; and in the class of all-aged bulls there was not an animal without a *Herd-book* pedigree attached to his name. There was some discussion as to the placing of the first and second; but Mrs. Packman's bull was very bad about his shoulders, while Washington also beat him for quality. There were two sons of Duke of Geneva, a Young Butterfly, and plenty of Booth blood in competition for these three premiums; so that fashion is getting quite its share of fair-play among the dairymen of Derbyshire. The Longhorns, through their especial champion, Mr. Cox, got a turn amongst the fat stock; and the Spondon steer will no doubt be seen again hereafter, although, so far, he is nothing very remarkable in the way of a feeding beast; and the best fat heifer, a very sweet one, exhibited by Mr. Mitchell and bred by Mr. Faulkner, was far better.

The longwool sheep, mostly Lincolns, were only moderate, as in truth some of the prize pens of ewes were really bad; but the judges generally commended the class of shearing rams, running to nearly twenty entries. The shortwool judges were also very liberal in their commendations of the Shropshires, more particularly in the breeding-ewe class, where every entry received some notice, and the shearing rams, of which there was a very fair class; but the first-prize old ram, though bred by Mr. Byrd, and the third to him from Mr. Masfen, would neither be worthy of their places, saving in such company as they kept at Derby.

There were a few good pigs, with the small sort for choice, in a dairy country where a man should have such a character as the Fat Boy gave his master for breeding "nice pork."

There were only three cart-stallions exhibited, and none of these of any remarkable merit; nor was the best cart-

mare anything extraordinary. A long class of two-year-olds, however, was lead off by Mr. Marple's roan filly, a "Royal first" at Leicester, and a well grown, active mare, though rather high on her leg, and now reaching to no less than seventeen hands, under the standard. There was plenty of blood in the riding-horse division, the young stock being by Gamester, Diophantus, the Spinner, Sir Colin Campbell, Gilbert de Gaunt, Græculus Esuriens, Lancewood, and so forth; while the efforts of the tenantry in this way receive some substantial encouragement from the Duke of Rutland, Lord Chesterfield, Mr. Meynell Ingram, and the gentlemen of his Hunt. Still the effect is not yet so palpable, for the lot of hunters in work was far better than any of the entries in the younger classes. The two cheanuts, placed first and second, are both clever young horses, Mr. King's son of Gamester more particularly; but he wants something of the power and substance of the other, and hence his getting no higher. Mr. Mitchell showed a couple of smart hacks, and Mr. Barron a showy, high-stepping half-Arab, that took the prize as the best cob; but the two-year-olds were bad, and the class of three-year-olds, or rather the conditions, clearly caused the judges some embarrassment. The articles went to declare that the best filly or gelding must be of the value of £50; or, "if in the opinion of the judges nothing exhibited be worth as much, the prize to relapse to the society." After due deliberation, the prize was awarded to a slack straggling filly, showing some breeding, and by Leamington; but it is questionable, as times go, whether she would have ever made her price in the market. It has accordingly been suggested that, to make this rule really effective, one of the judges shall take their prize-horse at the sum stated, in the event no other customer coming forward.

There were companion shows of poultry and flowers, all on the same ground; and Messrs. Haywood honestly earned their reward for a collection of implements, amongst which were to be found the names of some of our best makers. Conspicuous amongst the few novelties was a model of a manure distributor, invented and patented by Mr. Gilbert Murray, and by which farm-yard dung can be delivered and spread as the cart traverses the field.

The dinner in the Corn-exchange was well attended, as graced by the presence of a few ladies; but the subject of agriculture was carefully kept at arm's length until the company had thinned out, or until those who remained had heard so much that they did not care to hear much more.

## PRIZE LIST.

## JUDGES:

*Cattle*: Mr. C. Hellaby, Bramcote; Mr. Brough, Allsop-le-Dale.

*Agricultural Horses*: Mr. Wright, Hollington; Mr. Ladkin, Lutterworth.

*Hunters and Hacks*: Captain Barlow, Donnington; Mr. H. Corbet, Farmers' Club; Mr. J. E. Bennett, Husbands Bosworth.

*Long-wool Sheep*: Mr. Johnson, Westbrow, Grantham; Mr. Marshall, Branston, Lincoln.

*Short-wool Sheep*: Mr. G. Murray, Elvaston; Mr. S. Woods, Clipstone Park.

*Pigs*: Mr. Whitworth, Measham.

**Poultry:** Mr. Hewitt, Birmingham; Mr. Lowe, Comberford; Mr. W. J. Drewry, Burton-on-Trent.  
**Grain and Roots:** Mr. T. Clarke; Mr. S. Robinson.  
**Cheese and Butter:** Mr. S. W. Cox; Mr. E. Etches.  
**Wool:** Mr. Earp, Melbourne.  
**Shoeing:** Mr. King, V.S.; Mr. Russell, V.S.  
**Implements:** Mr. G. W. Baker, Suffolk; Mr. Campion; Mr. W. Hall Abell.

## CATTLE.

## DAIRY COWS.

Four cows, first, E. Vale, Derby; second, J. Hodgkinson, Allestree; third, G. J. Mitchell, Newton Mount.  
 Pair of cows, from members not keeping more than twenty cows, first, W. Wakefield, Catton; second, J. Foster, Thulston; third, T. Hancock, Dale Abbey.

Shorthorn cow, having had a living calf between January 1st and July 1st, 1868, first, J. Hill, Bladon Castle; second, W. Wakefield, Catton; third, J. Hodgkinson, Allestree.

Pair of heifers under three years old, first, J. Bailey, Mansfield; second, S. Wade, Mickleover; third, E. Thacker, Ambaston.

Pair of heifers adapted for dairy purposes, first, T. Carrington, Eaton; second, S. Wade, Littleover; third, T. Hancock, Dale Abbey.

Pair of stirks under two years old, adapted for dairy purposes, first, Edward Vale, Derby; second, Geo. J. Mitchell, Newton Mount; third, J. Bennett, Little Chester.

Shorthorn bull, first, Richard Blackwell, Tanaley; second, Mrs. Packman, Tupton Hall; third, B. Stevenson, Aston-on-Trent.

Shorthorn yearling bull, first, Samuel Birchall, Catton; second, Thomas Travis, Postern Lodge; third, Thomas Garratt, Little Eaton.

Four rearing calves, first, Mrs. Packman, Tupton Hall.

Bull calf, not exceeding twelve months old, first, George J. Mitchell, Newton Mount; second, William Wakefield, Catton.

Fat ox or steer of any breed, first, W. T. Cox, M.P., Spondon Hall (longhorn); second, W. S. Woodroffe, Normanton-on-Soar (shorthorn); third, G. J. Mitchell, Newton Mount (shorthorn).

Heifer or cow of any breed, first, Richard Ratcliff, Walton Hall (shorthorn); second, J. Evans, Alport (shorthorn); third, W. H. Marbrow, Newton Solney (shorthorn).

## HORSES.

Stallions for agricultural purposes, two years old and upwards, first, James Collingwood, Overseal; second, Ben. Ford, Locko.

Brood mare and foal for agricultural purposes, first, William Weston, Burley; second, James Smith, Thurstaston; third, W. D. Haywood, Stanton-by-Dale.

Two-year-old gelding or filly for agricultural purposes, first, Robt. Marple, Aston-on-Trent; second, W. D. Haywood, Stanton-by-Dale; third, Richard Stevenson, Aston-on-Trent.

One-year-old gelding or filly for agricultural purposes, first, William Ball, Egginton; second and third, Eggleston Thacker, Ambaston.

Pair of horses for agricultural purposes, first, Thos. Wingfield, Dale Abbey; second, Mark Audinwood, Weston Grange; third, John Porter, Weston-on-Trent.

Brood-mare and foal best fitted for breeding hunters and hacks, first, W. S. Woodroffe, Normanton-on-Soar; second, Robert Feilden, Coxbench.

Best hack or roadster, above four years, first and second, George J. Mitchell, Newton Mount.

Gelding or filly, of the value of £50, not thoroughbred, above three and under four years of age, first, Geo. J. Mitchell, Newton Mount.

Gelding or filly, not thoroughbred, above two and under three, first, W. J. Matthews, Repton; second, Robert Feilden, Coxbench.

Cob, not exceeding fourteen hands, for riding or harness purposes, first, William Barron, Borrowash; second, T. Cox, Pear-tree House.

Hunter, four years old and upwards, first, A. Tomlinson, Stenson; second, H. King, Melbourne; third, J. J. Meynell, Derby.

## SHEEP.

## LONG WOOLS.

Five breeding ewes, having had lambs in 1868 and suckled

them up to the 1st of June, first, M. Scorer, Scarciff; second, R. Johnson, Kirk Ireton; third, A. Bryer, Quarndon.

Five theaves, first, M. Scorer; second, R. Johnson; third, A. Bryer, Quarndon.

Five ewe lambs, first, R. Johnson; second, W. J. Matthews, Repton.

Ram of any age above a shearing, first and second, R. Johnson; third and commended, C. Mellor, Atlow.

Shearling ram, first, R. Johnson; second, R. Lee, Kniveton; third, M. Scorer. The class commended.

Five fat wether sheep, not exceeding twenty-two months old, first, M. Tatam, Little Eaton.

Extra stock, commended, W. S. Woodroffe, Normanton-on-Soar (fat ewe).

## SHORT WOOLS.

Five breeding ewes, having had lambs, first, W. Baker, Moor Barns; second, J. Rose, The Ash; third, C. Smith, Langley.

Five theaves, first, W. Baker; second, J. Rose; third, C. Smith.

Five ewe lambs, first, W. Baker; second, J. Rose.

Ram of any age above a shearing, first, C. Smith; second, W. Baker; third, W. Wood, Holly Bank.

Shearling ram, first, W. Baker; second, W. Wood; third, W. Wood.

Ram lamb, first, W. Baker; second, C. Smith.

Five fat wether sheep, not exceeding twenty-two months old, first, W. Wakefield, Catton; second, R. Hall, Wilne.

## PIGS.

## LARGE BREED.

Boar of any age, first, J. Hawkesworth, Barton Blount; second, M. Walker, Stockley Park.

Sow of any age, first, T. Garratt, Little Eaton; second, M. Walker, Stockley Park.

Three breeding pigs of one litter, not exceeding seven months old, first, M. Tatam; second, M. Walker.

## SMALL BREED.

Boar of any age, first, M. Walker, Stockley Park; second, J. T. Poyser, Burton-on-Trent.

Sow of any age, first, G. J. Mitchell, Newton Mount; second, Mrs. Arkwright, Etwell Hall.

Three breeding pigs of one litter, not exceeding seven months old, first, J. T. Poyser; second, M. Walker.

## ROOTS.

Six mangold wurtzel, first and second, Countess of Chesterfield, Brethby-hall; third, W. Barrow, Borrowash.

The Judges recommended that the prizes for swedes be given for mangolds.

## CHEESE AND BUTTER.

Cheese of not less than 1 cwt., first, J. Smith, Weston; second, Rev. H. W. Sitwell, Stainsby; third, J. Smith; highly commended, J. Greatorex, Stretton; J. Rose, The Ash; G. Steer, Mickleover; W. Armishaw, Sudbury; J. Harrison, Brailsford.—Judges' prizes, M. Walker, Stockley Park; T. C. Smith, Birdgrove; J. Hawkesworth, Barton Blount.

Cheese of not less than 1 cwt., made by exhibitors who shall not have made any cheese on the Sunday after the 14th of June, 1868, first, Rev. H. W. Sitwell, Stainsby; second, G. Steer, Mickleover.

## BUTTER.

Milk butter (not less than six pounds), first, W. T. Cox, M.P., Spondon Hall; second, A. M. Munday, Shipley Hall; highly commended, B. Ford, Locko.

Milk butter (not less than six pounds) made by a farmer's daughter, first, T. Hancock, Dale Abbey; second, T. Jerram, Bearwardcote; highly commended, J. Vickers, Willington.

## WHEAT AND BARLEY.

Red wheat, first, R. Stevenson, Aston-on-Trent; second, R. Henshaw, Alvaston.

White wheat, first, W. Wood; second, W. S. Woodroffe, Normanton-on-Soar.

Barley, first, G. Ashby, Marston-on-Dove; second, G. J. Mitchell, Newton Mount.

Oats, first and second, J. Greatorex.

Beans, first, G. J. Mitchell.

## WOOL.

Three fleeces of long wool, first, R. Johnson.

Three fleeces of short wool, first, J. Ash Rose, Etwell.

## COLLECTION OF IMPLEMENTS.

First, Haywood, Derby; second, Ratcliff; third, Harrison; highly commended, Hayward and Ratcliff, for Richmond and Chandler's improved chaff-cutter.

Silver medals.—To Goodall for mills adapted to agricultural purposes; to Woolley for a collection of carts and waggons constructed and manufactured by himself; and to Corbett for an improved winnowing machine.

At the dinner the CHAIRMAN, the Hon. E. W. Coke, could only say, as to the rating of the county, that he, along with his brother committee-men, had arrived at the one conclusion, that there could be nothing more unsatisfactory than the present system of voting, namely, under the County Rate Assessment Act and the Union Assessment Act. The subject ought to be dealt with at once by Parliament. He thought the counties should be rated under one uniform and universal Act of Parliament. On going into the rating question they found that the rates on land varied from ten to twelve per cent., and on buildings from ten to twenty per cent. Was there any justice in that? He fully agreed that representation and taxation should go together. Derbyshire would not derive any great advantage from any such measure as that he had mentioned, as county magistrates had so great a care for the ratepayers that they acted with the utmost discretion in the disbursement of the county finances. But still, he believed the principle was right, and therefore hoped it would be carried out. There was the question of the Cattle Market Bill, and in reference to that he could reckon upon many gentlemen in the room as his friends, who would be of his opinion that no county in England is more deeply interested in keeping out cattle disease than Derbyshire. A question like the cattle market question should not be a party one, and to a great extent it was not, but still the Opposition had taken an unjustifiable course in opposing the Bill, which, recommended to Government by the Commissioners for the investigation into the cattle plague, advocated measures that had checked and stifled it in the country.

Mr. J. G. CROMPTON, in proposing the health of the Committees and Secretary, had been surprised that so little had been said upon agricultural subjects.

Dr. HITCHMAN said the splendid discoveries of the last half century, the marvels of locomotive machinery and steam, by which the fertile prairies of America, the sunny plains of France, the virgin soils of Russia, the teeming fields of Hungary and the Danube (associated with cheap labour and low taxation), have been as it were linked to this much worn, over-taxed, and populous island, while they have scattered untold blessings on toiling thousands, have diminished the profits of the British farmer, and added a hundredfold, to the risks to be incurred from pestilential diseases to his flocks and herds. Yes, sir, while we do homage to the genius and benevolence of such men as Peel and Cobden, who scattered broadcast the blessings of free-trade to the artisans of Great Britain, we must not conceal the fact, that it did, at the same time throw as it were a heavy chain around the English farmer, and compelled him to run thus weighted in the great race of competition with the farmers of other lands. We mention this in no craven spirit; we want not to return to the past; we want not

to call back again the legislation of other days; we know that we might as well stretch out our hands to stop the chariot of the sun, to arrest the stars in their courses, or to push the rolling waves of the Mississippi back again to their highland birthplace, as to attempt to recall the past. We want no retrogression; but in a pursuit so uncertain as farming in England, and yet so momentous in its results, to the well-being of the community, we claim the sympathy and the support of our landlords and our countrymen. In a land where seasons baffle the resources of capital and skill, and effect a difference in produce greater than can be realised by good farming, and farming not good, we do ask, that no unnecessary burdens be legislatively placed on our shoulders. In an occupation where no skill however great, no industry however unceasing, no forethought however sagacious, no economy however wise, can secure a certain result, we do ask that we should be free to employ the products of our fields in the best manner which skill, experience, and forethought should dictate; in one word, *we ask to be free*; free to employ, as we may think best, the corn which had been secured by industry and energy. The Government cannot give us the cloudless skies and the virgin soils of other lands, but it could, and it ought, to extend to the British farmer the same privileges which it awards to the farmers of other lands. And again, it ought to protect us, as our Chairman has said, from the importation of visible and tangible poison, which deals desolation to our herds, and fills whole families with poverty and dismay. On the great principle of "Live and let live," on the still higher principle of "Bearing one another's burdens," and thus fulfilling the great law of Divine Love, why should not some concession be made by the community at large, and the pest cattle be slaughtered at the port of debarkation, or be made to undergo quarantine on British waters, until their plague-spot be washed away, and they can no longer spread desolation and death over this our fatherland? Let these things be done, and the English farmer, handicapped though he be by a fickle climate, by a much worn soil, high-priced labour, taxation, and the like, will be glad to compete with the farmers of other lands: he cares not that much of the results of centuries of his skill are carried abroad in an embodied form by the purchase of stallions, bulls, and rams, for the avowed purpose of competing with him in his own markets, with his own weapons; he will welcome the honourable strife, as, in other fields, his forefathers and his contemporaries grappled knee to knee, and shoulder to shoulder, with the foreigner, with a result of which Cressy, and Agincourt, Blenheim, and Waterloo, Alma, and Inkermann are the records, even so, as "Peace hath her victories, as well as war."

Mr. T. W. COX said he was glad to see that the cheese was so good that the judges could not decide who should have the prizes, and they had been obliged to give three extra prizes. As to that fearful disease, pleuro-pneumonia, he did not think they had suffered so bad as many other counties, but still he hoped every step would be taken to prevent a recurrence of that fearful plague.

Mr. CORBET, in responding for the judges, felt much inclined to find fault with the disposition of the toast list, which brought some of the more important toasts to nearly the end of the list.

## WARWICKSHIRE AGRICULTURAL SOCIETY.

## MEETING AT WARWICK.

The exhibition of this society, which was established in 1830, was held at Warwick. Amongst the Shorthorns there were some very good animals and some inferior ones. The first prize for the best bull was obtained by Mr. John Lynn, Church Farm, Stroxtan, who also took the extra prize for the best bull in the yard. The Herefords, generally speaking, were rather an inferior lot, and only small in numbers. There was, however, one good specimen of a cow, shown by Mr. J. Baldwin, Luddington, bred at Macnaughty. In the class of Devons there were very few animals shown. In the longhorns a good bull was exhibited by the Duke of Buck-

ingham, and the cows were of a superior class. The cattle shown as being the best adapted to dairy purposes were a very fair class taken as a whole. The number of horses entered was 98. There were 27 agricultural horses, 43 hunters, and 28 hacks and ponies entered in the catalogue, but a few were absent. Several good animals were shown amongst the hunters, though some of the first-class horses of Warwickshire were not shown. The sheep exhibited were of a somewhat inferior kind, the dryness of the season having affected the herbage so much that the condition of many of them was not so good as have been exhibited on former occasions. The

show of long-woolled sheep was not good, but that of the Shropshire ewes as a class were to be commended. In a class for the best pen of five ewes that had suckled lambs to the 1st of June, where Mr. John Baldwin, of Luddington, was awarded the first prize, this was "protested" against. There were 28 entries for pigs; and many of those exhibited were very good. The Judges—Cattle: Mr. T. Morris, Maisemoor Court, Gloucester; Mr. Baker, Rowright, Chipping Norton. Sheep and Pigs: Mr. B. N. Cresswell, Ravenstone, Ashby-de-Zouche; Mr. H. Fookes, Whitechurch, Blandford. Agricultural Horses and Donkeys: Mr. J. E. Bennett, Bosworth Grange, Rugby; Mr. C. Randell, Chadbury, Evesham. Hunting Horses and Hacks: Mr. C. Milward, Fox Hollies, Hall Green; Mr. J. Shepherd, Watton, Coleshill. Implements: Mr. M. Savidge, Saraden Lodge Farm, Chipping Norton; Mr. J. Hicken, Dunchurch, Rugby. Cheese: Mr. T. Kemp, Warwick. Grain: Mr. P. Kench, Warwick.

## PRIZE LIST.

## CATTLE.

## SHORTHORNS.

Best Bull, above three years old, £10, John Lynn, Church Farm, Stroxtan (Prizeman).

Best bull, over twenty months, and under three years old, first, £10, S. C. Pilgrim, Burbage; second, T. Walker, Berkeswell Hall.

Best bull, over ten months and under twenty months old, first, £8, John Lynn, Stroxtan; second, G. Garne, Churchill Heath.

Best cow, in milk, above three years old, first, £7, G. Garne, Churchill Heath; second, Kirby Fenton, Harvey Villa, Leamington.

Best pair of heifers, under three years old, in milk or in calf, first, £7, G. Garne, Churchill Heath; second, James Dormer, Ashow.

Best pair of heifers, under two years old, first, £5, G. Garne, Churchill Heath; second, E. Lythall, Radford.

## HEREFORDS.

Best bull, above ten months and under three years old, first, £10, John Baldwin, Luddington; second, Thomas Garrett, Compton Scorpion.

Best cow, in milk, above three years old, first, £7, John Baldwin, Luddington; second, John Baldwin.

Best pair of heifers, in milk or calf, under three years old, first, £7, Thomas Garrett, Compton Scorpion; second, John Baldwin, Luddington.

## DEVONS.

Best bull, £8, A. Umbers, Weston Hall.

Best cow or heifer, in milk, first, £5, S. Umbers, Wappenbury; second, A. Umbers, Weston Hall.

## LONG-HORNS.

Best bull, first, £8, the Duke of Buckingham; second, Thomas Satchwell, Hernfield, Knowle.

Best cow or heifer, in milk, first, £5, J. Godfrey, Wigston Parva; second, J. H. Burbury, Kenilworth.

## CATTLE FOR DAIRY PURPOSES.

Best pair of cows, in milk, first, £10, J. S. Perkins, Leek Wootton; second, E. Lythall, Radford; third, John Palmer, Hampton-on-the-Hill.

Best bull, for breeding purposes, of any pure breed, £3, Sir J. W. C. Hartopp, Four Oaks Park.

Best pair of steers of any breed, under three years old, £5, W. Endall, Henley-in-Arden.

Best bull, for breeding purposes, exhibited either for a prize or as extra stock on the day of the show, £10, John Lynn, Church Farm, Stroxtan.

## SHEEP.

## LEICESTERS.

For the best shearing ram, first, £8, Thomas Marris, Ulceby; second, Thomas Marris, Ulceby; third, Francis Spencer, Wibtoft.

Best two-shear ram, first, £8, Samuel Umbers, Wappenbury; second, Thomas Marris, Ulceby; third, Francis Spencer, Wibtoft.

Best pen of five ewes, that have suckled lambs to the 1st of June, 1868, first, £7, W. Hurlston, Wasperton; second, S. Umbers, Wappenbury.

## LONGWOOLLED SHEEP, NOT LEICESTERS.

Best shearing ram, first, £8, John Lynn, Stroxtan; second, John Wheeler, Long Compton; third, Jno. Tombs, Hathorop.

Best two-shear ram, first, £8, John Lynn, Stroxtan; second, John Tombs, Hathorop; third, John Lynn, Stroxtan.

Best pen of five ewes, that have suckled lambs to the 1st of June 1868, first, £7, B. Hawkes, Hunscoate; second, John Baldwin, Luddington.

## SHROPSHIRE SHEEP.

Best shearing ram, first, £8, Ann Baker, Grendon; second, C. R. Keeling, Penkridge; third, W. Baker, Moor Barns, Atherstone.

Best two-shear ram, first, £8, Ann Baker, Grendon; second, Ed. Lythall, Radford; W. Baker, Moor Barns, Atherstone.

Best pen of five ewes, that have suckled lambs to the 1st June, 1868, first, £7, Ann Baker, Grendon; second, John Coxon, Freeford, Lichfield.

## OTHER SHORT-WOOLLED SHEEP.

Best shearing ram, first and second prizes, George Wallis, Old Shifford.

Best two-shear ram, first and second prizes, Thomas Marris, Ulceby.

Best long-woolled tup, £2, Francis Spencer, Wibtoft.

## HORSES.

## AGRICULTURAL HORSES.

Best stallion, first, £20, R. Walker, Broadwell; second, W. Wynn, Grafton.

Best mare in foal or with a foal at her foot, first, £10, John Cook, Fulbrook; second, W. Hurlston, Ditchford.

Best gelding under three years old, £5, R. H. Timms, Braunston.

Best filly under three years old, £5, J. Burbury, Leek Wootton Grange.

Best pair of cart geldings or mares above four years old, £10, C. Burton, Temple Balsall.

## HUNTING HORSES.

Stallion best adapted for hunting purposes, £15, William Gulliver, Swackliffe, near Banbury (Naseby).

Best hunter that has been ridden in the past season, first, £15, W. A. Corbett, Dumbleton; second, C. W. Paulet, Wellesbourne.

Best hunter, four years old and upwards, first, £15, George Van Wart, Edgbaston; second, W. A. Corbett, Dumbleton.

Best four-year-old colt or filly, adapted for hunting purposes, £10, Thomas Whittington, Wootton Wawen.

To the farmer, being a resident in Warwickshire, who shall exhibit the best hunter that has been ridden by himself with hounds, £5, E. Knott, Fenny Compton.

Best half-bred two-year-old old colt or filly, £3, W. Hurlston, Ditchford.

## LOCAL PRIZE.

To the tenant-farmer, being a resident in Warwickshire, farming not less than fifty acres of land, who shall exhibit the best hunter, not more than six nor less than four years old, £10, W. Wilson, Ilmington.

## HACKNEYS AND PONIES.

Best hackney, £10, A. Harrison, Metchley.

Best hackney, not exceeding 16 hands high, £10, A. Harrison, Metchley.

Best pony, above 13 hands high, £5, J. Spencer, Villier's Hill.

Best pony, above 12 and not exceeding 16 hands high, £5, R. Singlehurst, Eathorpe.

## PIGS.

Best boar pig, of the large breed (except Berkshire), under 18 months old, £3, R. E. Duckering, Northorpe.

Best boar pig, of the large breed (except Berkshire), above 18 months old, £3, A. Umbers, Weston Hall.

Best boar pig, of the small breed, under 18 months old, first, £3, Wm. Hemming, Coldcott, Moreton-in-the-Marsh; second, Wm. Hemming, Coldcott.

Best boar pig, of the small breed, above 18 months old, first, £3, R. E. Duckering, Northorpe; second, E. Umbers, Wappenbury.

Best boar pig, of the Berkshire breed, under 18 months old, first, £3, and second, £2, Jos. Smith, Henley-in-Arden.

Best boar pig, of the Berkshire breed, above 18 months old, John Spencer, Villier's Hill.

Best breeding sow, suckling pigs of her own farrow, and in-milk at time of show, of the large breed (except Berkshire), John Wheeler, Long Compton.

Best breeding sow, of the small breed, suckling pigs of her own farrow, and in-milk at the time of show, first, £3, John Wheeler, Long Compton; second, E. Umbers, Wappenbury.

Best Berkshire sow, suckling pigs of her own farrow, and in-milk at the time of show, first, £3, and second, £2, John Spencer, Villier's Hill.

Three best breeding pigs, of one farrow of 1868, of large breed, £2, R. E. Duckering, Northrope.

Three best breeding pigs, of one farrow, of 1868, of small breed, £2, R. E. Duckering, Northrope.

Three best breeding pigs, of one farrow of 1868, of Berkshire breed, £2, J. Spencer, Villier's Hill.

At the dinner Mr. NEWDEGATE, M.P., said it happened to be his lot to attend a meeting of the Farmers' Club at Colehill, and there was an exhibition of roots, at which one farmer year after year carried off the prize for mangold wurtzel. At last he heard those who had the management of the club saying, "We must disqualify that man." He (Mr. Newdegate) asked why? The answer was, "He grows his mangold wurtzel on a field that he turns the river over." Well, in a very humble way, he (Mr. Newdegate) followed the hint thus given him, and tried the irrigating of mangold wurtzel. He found that in such a season as this that system, which was the origin of fertility in India, might be made available not only for grass land, but for plough land where they required the production of roots. Then he also believed that the present season, and such a one as that of 1864, had taught them another lesson that it would be prudent to follow the example of Suffolk and other counties, where, having been devoted to the production of turnips and in the growing of root crops, they would find a far larger extent of mangold wurtzel grown than he could remember when he was a lad, for he spoke but as a baby farmer amongst those who were infinitely his superiors in all knowledge pertaining to agriculture. He thought it was obvious that if they could sow their mangold wurtzel in March or April, they might try whether they had got a plant, and if it failed turn round and sow their turnips. Those who had acted upon this principle this year would be at ease in February and March, when many farmers, like members of the House of Commons, might possibly find themselves in trouble. Such, he believed, were the lessons to be drawn from the change of climate which they had witnessed. It was his conviction that the extensive drainage which had taken place had changed the climate of this country, and that there were also circumstances connected with the vast extent of railways and the consequent exposure of metals, which probably had the effect of attracting the electricity in the clouds, which had brought about a state of the atmosphere causing them to see seasons of more excessive drought and a heavier rainfall (though at shorter periods) than was formerly the case. These were, in his opinion, the lessons which their experience taught them; but he must be pardoned if he spoke with diffidence on anything connected with agriculture, as he was only an incipient farmer.

Mr. BROMLEY DAVENPORT, M.P., said a subject of great interest to the farmer at the present time was how he was to feed his stock during the ensuing winter. The farmers had suffered greatly from drought during the past summer, and fodder for cattle will be very scarce. It might, however, teach them the value of certain things, which they had hitherto been disregarding of. It had been the habit of the English farmer and of the public generally to disregard the value of straw as fodder. A great deal went into the manure-yard which ought to contribute to the sustenance of stock. Another subject of paramount importance to farmers was the utilisation of sewage. On this point he expressed a hope that what was at present in many instances a nuisance might be converted into a benefit to the soil. There was also one other question to which he wished to allude, and that was a most important one—namely, that of education. It was a subject that would be brought before the new Parliament, and he would merely wish to state his opinion on the matter. Farmers' sons ought to be taught chemistry, or, at all events, they should possess a certain amount of chemical knowledge, and should also be acquainted with the appliances of steam to agriculture; and with regard to labourers' sons, they should be instructed of course in the three R's—reading, writing, and arithmetic, and should also thoroughly understand everything that was practical with regard to farming. Furthermore, they

should have a certain amount of knowledge in regard to manual labour which they would have to encounter in life.

Mr. T. HORLEY, jun., said he was glad to say that the show that day was a great success. The cattle plague, he hoped, had passed away; but he must say they heard as it were with fear and trembling that it was continuing its ravages upon some of the shores on the Continent. He hoped, however, it would not reach England again. He thanked those gentlemen who had given their support to the society, and observed that it was their wish to give every accommodation to exhibitors and hoped that the number of subscribers would increase, and he trusted that "Progress" would be their motto. Allusion had been made to agricultural labourers, and he might say that the labourers of England were never in a more satisfactory way of doing or in a better position than at present.

## EXPERIMENTS AT THE SEWAGE WORKS.

Last month some important experiments were made at the Leamington Sewage works, by a new process. A curious circumstance is said to have led to the origin of the invention, viz., a perusal of some of the purifications practised by the ancient Hebrews, "the ashes of a heifer," denoting animal charcoal, and blood poured upon the ground suggesting the use of blood and clay. Animal charcoal, blood and clay, are therefore used, with alum, and three other chemicals, which are at present a secret, but which are stated to be of very small cost, and to be obtained in any quantity. The three substances first mentioned have suggested the name of the "A.B.C." compound as the system is called. The experiments proved that this compound is capable of precipitating nearly all the the manurial constituents of sewer water, the whole settling in a flocculent mass at the bottom of a vessel in a few minutes. The water was left almost pure, and the inventors say that the residuum when dried requires only simple treatment by an acid to render soluble some of the constituents for the use of plants. Those who take an interest in the process are looking forward with some interest to the publication of the analysis of the samples taken by Dr. Franklin, at the Leicester experiments. Subjoined is Mr. Wigner's statement of the result of these experiments:—

"The total quantity of sewage treated was 10,637,000 gals., being nearly one-half of the Leicester drainage. The following table shews the comparative analysis of the sewage before and after its treatment by the A B C process. The figures are the average of 16 analyses of as many samples taken at intervals of one hour:—

	Sewage.	A B C Water.
	Grains per Imperial Gallon.	
Organic matter .....	42.56 .....	10.20
Mineral matter .....	68.36 .....	58.41
Total solid matter ...	111.92 .....	68.61

"From this it will be seen that the approximate analysis which was published did not overstate the degree of purification effected; on the contrary, these results are considerably more favourable.

"These are the points of most importance to the Rivers Commission, but to the towns the nature of the residuum has as equal practical bearing. The actual quantity of the manure obtained by the process will be ascertained about three week's hence, when it is thoroughly dry. I estimate, however, that it exceeds 90 tons, or one ton per 120,000 gallons of sewage. The analysis of an average sample of it, dried in the laboratory till fit for sale, is as follows:—

Water .....	14.00
Organic matter .....	47.10
Alkaline salts .....	4.76
Earthy salts, containing phosphoric acid 1.31	12.71
Silicia .....	21.43
	100.00

"The nitrogen contained in this sample is considerably in excess of that given in the approximate analysis. Its equivalent in ammonia is more than 4½ per cent., and the value of manure will therefore be proportionately increased, while your estimate of the cost—namely 8s. 7d. per 100,000 gallons—is as nearly correct as possible."

## IMPROVEMENTS IN NORFOLK FARMING.

## AGRICULTURE AT THE BRITISH ASSOCIATION MEETING.

At the Meeting of the British Association in Norwich, Mr. C. S. READ, M.P., read the following paper:—

When the British Association intimated its willingness to honour our old city of Norwich with a visit, and especially when I found that a section would be devoted to Statistics and Economic Science, I felt anxious that the chief feature of the county of Norfolk, namely, its Agriculture, should somehow be brought under the notice of the Society. Early application was made by your local secretaries to our Chamber of Agriculture for a paper on Farming Statistics, but we had none beyond the few figures anyone could extract from the little Blue Book, which cost last year the sum of £18,000. But there was more to be said about the progression of Norfolk farming during the last quarter of a century, and the secretaries appeared most anxious that some such paper should be produced. All naturally turned to Mr. Bacon, who wrote the voluminous and exhaustive prize report for the Royal Agricultural Society; but Mr. Bacon pleaded advanced years and much pressure of employment. Certainly he is not as juvenile as he was twenty-five years ago, but his natural force seems by no means abated, and his ripened talents could have furnished us with an excellent and truthful review. As no volunteer appeared in the field, I was most unexpectedly called upon by numerous friends to perform the task. It was impossible for me to do more than collect the materials for this short report till the Parliamentary session was ended, and since then I have had the harvest, and sundry matters public and private, to occupy much of my time, so that I have deep need of your indulgent consideration in listening to this imperfectly arranged paper. I have to offer my acknowledgments to over fifty of the leading farmers of the county, who have obligingly furnished me with comprehensive answers to a series of questions I have addressed to them. I have taken an average of these returns, and give the result in the opinions I shall express. It will, therefore, be seen that the information I record is not the result of my own individual ideas or experience, but has been collected from many of the best farmers in Norfolk. It is quite impossible within the limits of a paper to do more than glance at some of the chief improvements of Norfolk agriculture during the last quarter of a century. To mention all or go into the details of the greatest changes would occupy the space usually allotted to an agricultural essay. It will therefore be my desire to record only the most marked changes, which have recently influenced the farming of Norfolk. In doing so, I must advert to many improvements which are common to the Kingdom at large. I hope I shall not be accused of a desire to confine the credit of such progression to the county of Norfolk. But the general tenor of these remarks will be to show that Norfolk farming, which took such a vigorous start, and maintained such a prominent position during the early part of this century, has not lost ground during the past twenty-five years, though some other counties may have overtaken and perhaps outstripped us in the race. In 1804 Arthur Young wrote his voluminous report for the old Board of Agriculture. Some eight years previously Kent also made a survey; but these eight years were memorable in the annals of British agriculture, for during that period Thomas William Coke commenced his career as a Norfolk farmer. The first Lord Townsend had, thirty years before that period, introduced the culture of the turnip into Norfolk, and commenced a better system of agriculture. But it was reserved for the great Coke of Holkham to mature that system and fully develop the capabilities of our barren county. And however much it may be the fashion to exalt our recent progression, yet all Norfolk men feel that many of their recent improvements originated with their great patrons, and perfect as may be the superstructure of their agriculture now, the chief credit is due to those who prepared so solid a foundation for their building. Forty years rolled by, and our National Society asked for a report of what had been done since the

days of Arthur Young and Mr. Coke. Well was that call responded to. Much was to be recorded: the progress, the hindrances, the ins and outs, the ups and downs of Norfolk agriculture during that time could not be summed up in a few words. They filled a large octavo volume, and filled it well. Strange to tell, the man who was the theme of Arthur Young's report was still the burden of Bacon's song. A life of active usefulness, which was in its full vigour when Young wrote, just closed in time for Bacon, as it were, to sing its elegy. Gracefully and truthfully was it rendered—a simple but eloquent record of a great man's deeds. Time is comparatively young since the days of the last report, but no similar space of time was ever more momentous to the farming interest. Externally there has been Irish famine, the free importation of corn and cattle, the influx of American and Australian gold and the Russian loan, to say nothing of several monetary panics. Internally, agriculture has experienced the potato disease, the new epidemics among cattle, the small-pox of the sheep, the ruinous agricultural prices from 1849 to 1853, the rise and progress of new artificial manures, the greater development of the giant power of steam, the cattle-plague visitation, the wretched corn crops of 1865, 1866, and 1867, and lastly the unprecedented drought of the present year. However important the minor accessories, the abolition of protective duties on agricultural produce must ever be regarded as the great event of this epoch. Different may be the opinions of the fairness and completeness of a measure which repealed the import duty on wheat but retained the malt-tax on barley, yet all will agree that one good was achieved: it has put the farmer in a much better position with the public and his fellow-producers. Regarded as the favourite child of government, his protective garb of many colours was a source of envy and jealousy to the rest of the community, but he was suddenly exposed to the competition of the whole world, deprived of his protective shield without being relieved of an ounce of that weight of taxation with which in his palmy days he had been saddled. It can readily be imagined that a corn-producing county like Norfolk would suffer severely in the early days of free-trade. It manufactures a large quantity of meat, but it is not from the natural produce of the soil: it is nearly all raised by artificial means, and the real profit is always looked for in augmented corn crops. The Norfolk farmer had no neat stock, cheese, or butter to dispose of, these have all along kept up their prices pretty well: all his produce was wonderfully depreciated, and he could not materially lessen the cost of production. His rent was a fixed sum, and the seven years' average made the tithes higher than they had been in higher times. He knew it would not do to buy less manure or keep less stock, and he had not the heart to reduce the labourers' wages to the full extent the prices warranted. Without claiming any special merit for the farmers of this county, it is no exaggeration to say that they bore their losses with as much patience as any of their brethren, and accommodated themselves to the altered state of things by rigidly economizing their expenses and applying themselves with more than ordinary assiduity and ability to the cultivation of their farms. I must remember that I am not addressing a body of Norfolk farmers, but a literary and scientific assembly, whose knowledge of agriculture is principally confined to its theory, and who have probably but a slight acquaintance with the general practice and local customs of Norfolk farming. It may therefore be necessary to say that the soil of the county varies greatly, and that while in some parts of the east and north there are districts that are naturally fertile, there are large tracts to the south and west, which are so thin and poor that fifty years ago they grew nothing but rye and rabbits, but which are now so changed by the judicious expenditure of capital that literally

"Fleecy flocks the hills adorn,  
And valleys smile with wavy corn."

X

It is in these districts that the greatest improvements have been made; it was so in the days of Arthur Young, it was so when Mr. Bacon wrote his report, and it is so now. In West Norfolk we find large farms and long leases. In the east smaller estates and yearly holdings. In the west there are open fields and thin soils; in the east, small enclosures, much hedgerow timber, and a soil more or less fertile. The one is the country for sheep, the other for stall-fed cattle; one requires an extravagant expenditure of artificial food and manures to maintain the productive powers of the land, and the other requires little more than the oilcake and other purchased food which are given to the winter-grazed oxen to keep the farm in excellent condition. And here an observation should be made as a sort of qualification to the above statement. In talking of the agriculture of East and West Norfolk, no one supposes that the electoral division of the Reform Bill of 1832 drew any sort of line between one description of farming and another; neither must it be inferred that there are not in the East individual farmers as enterprising and successful—and perhaps more so—than any in the West, and there are also some landowners equally liberal as the great and good ones of the Western Division, nor that all the soil of the East district is superior to that of West Norfolk; but, taken as a whole, these distinctions do exist, and when applied in a general manner will not convey an impression materially incorrect. It is impossible from the statistical returns supplied by the Board of Trade to give an idea of the number of cattle that are grazed in Norfolk. These returns are made in July, when the farmer has just cleared his yard of the winter-fed cattle, and having so little pasture he does not buy in many more lean stock till late in the autumn. The numbers returned in 1866 and 1867 correspond pretty nearly with those collected by Sir J. Walsham in 1854; but when it is stated that more than half or upwards of 60,000 of that number are composed of cows and yearling stock, it will be at once seen that the great mass of grazing cattle are practically excluded. I could add much to the interest of these statistics if the returns of live stock were occasionally made in the winter. It would show the amount of summer and winter grazing that is peculiar to different districts, and I believe that if our returns were made in January, the number of our cattle would be *doubled*. A larger quantity of younger steers are kept than formerly, and are grazed at a very early age. Polled Scots have almost disappeared from our yards, and a very large proportion of the Norfolk-fed cattle come direct from Ireland. Norfolk must ever be more of a grazing than a feeding county, but we have a few herds of improved Shorthorns in various parts of the county. The Devons that lingered in the west so long after their introduction at Holkham have almost vanished, even from our show-yards; but as a set-off against the loss of the Devons we have to commemorate a grand revival of the polled Norfolks as a numerous and distinct breed. The old-fashioned *gay* Homebreds are not recognised as the true stamp of the improved Norfolks, for the latter are a blood-red; and while horns and slugs are studiously avoided, and milking properties well cared for, they possess a uniformity of character, style, and make that would do credit to many of our established breeds. In consequence of the high price of store stock an effort has been made to rear calves sent, when a few days old, from the dairy districts, but I do not apprehend that it will be extensively practised, as it will be found cheaper in a county so destitute of milk to buy yearling steers that have been raised on the natural pastures of the Emerald Isle. The custom of giving grazing but especially young stock pulped or shredded roots mixed with equal quantities of straw or hay chaff has prevailed of late, and will be resorted to this winter where there happens to be any roots for the cattle. A large admixture of linseedcake, and more recently of cotton-cake, and all sorts of meal is given to grazing stock, and frequently in too large proportions; for it is impossible for the stomach of a bullock to assimilate seven or eight pounds of linseed-cake and half-a-peck of meal. Even the improved value of the manure by no means compensates for this loss, as cheaper fertilizers can be supplied in the shape of guano and other ammoniacal dressings. Although flocks of sheep have undoubtedly increased in some parts of the county, especially within the last two years, it does not appear that the numbers on the whole have materially altered. More ewes may be kept in some districts; but in many well-farmed tracts of West Norfolk, where there is no sheep-walk, breeding flocks have been dispensed

with, as there is great difficulty to provide green food in the spring, and the reservation of turnips for the flock told prejudicially upon the late-sown corn crops which followed. The chief sheep stock on such farms are the lambs that are bought in the summer from some neighbouring farmer, and are sent fat to the London market when twelve or thirteen months old. These sheep are mostly supplied with sliced swedes *ad libitum*, receiving at the same time hay chaff and oilcake, and sometimes a little corn. Since the visitation of the cattle-plague sheep have been bred and kept on lands in East Norfolk which were formerly considered unsuitable for sheep. A great demand for all sorts of sheep, but particularly ewes, two or three years ago, caused a wonderful rise in the value of this stock; but the increased number of lambs that are produced, and the appalling drought we have just passed through, have reduced the price of lambs to a lower range than has been known for more than twenty years. The chief alteration that has taken place in the sheep stock of this county results from the introduction of the so-called Oxford downs. These medium-wooled sheep are most useful animals; but every half-bred mongrel passes by the name of an Oxford or Shropshire Down. Half-bred flocks are now far too common in the county. It requires a great deal of care and selection to preserve any uniformity in the produce, and we cannot be too thankful that some of our noblemen and leading agriculturists still adhere to the South-downs and other pure breeds. Though our Leicesters of twenty-five years ago have recently been christened Cotwolds or Longwolds, I believe they are the best style of sheep for producing a genuine half-bred lamb upon which the supply of Norfolk mutton must mainly depend. The Norfolk pig is the same lanky, long-nosed, flat-sided brute it ever was, notwithstanding the enterprising efforts of a few of our leading breeders to improve the porcine stock of our county. Pigs are generally bred by small farmers, with whom the sow that will produce the largest family and afford a bountiful supply of milk is much more thought of than the quality of the progeny she rears. The young pigs are sold to the larger occupiers for shanking their stables or straw-yards, and are generally resold as store pigs, comparatively few being fattened by them. In olden time, when corn was all thrashed by the flail, more pigs were kept in the bullock-yards than now, and the same remark may apply to poultry. The restless pigs disturb the quiet slumbers of the drowsy oxen, and the cocks and hens are sure to make free with the choicest morsels of meal and cake, as they find so few stray grains of corn to pick up. The poultry has certainly improved of late years, though I cannot think the gaunt and lanky Cochins produced any benefit; but the establishment of improved breeds by many enthusiastic amateurs has left good marks in many neighbourhoods. The fruits of the liberal prizes offered by our Agricultural Society are beginning to be felt in the restoration of our cobs and cart horses to the proud position they once held. The Norfolk cart-horse is never what is termed a fashionable animal, having few distinctive or attractive features; but he was a clean-legged, quick-stepping, hardy horse, well adapted for the light tillage of our Norfolk soil. Years of neglect and an indiscriminate admixture of Suffolk blood have rendered our Norfolk cart-horse still more of a nondescript; but there are many teams of these useful and most servicable animals that contrast well with the petted Suffolk in a show-yard, and would work them to death if exposed to all the labour and hard keeping of an ordinary farmyard. The old stamp of Norfolk cob has not been quite regained, but the long carries of good trotting nags and bold stepping ponies at our recent shows give good grounds for believing that a great improvement is taking place in this class of stock. There can be no doubt that the yield of wheat in Norfolk has greatly increased during the past twenty-five years. From only one part of the county have my correspondents intimated that there is but little change. This comes from some of the best land in Norfolk, when great crops of wheat were common full fifty years ago. The repetition of wheat on these soils may be more frequent, but the yield does not seem to have perceptibly increased. And until we discover some chemical manure—some soluble silica for instance—that will strengthen the straw in moist seasons and enable it to bear a large and fuller ear, any increase of yield in these fertile districts must remain in abeyance, for already the greatest loss is incurred from the crop lodging at an early period of its growth, and the more the crop is forced the more this tendency of the straw to go



down increases. Thin and early sowing, with a thorough consolidation of the land, may in a measure alleviate this increasing difficulty, but once let the chemist show us how to stiffen the straw of our cereals, and then the produce, for aught we know, may be doubled, unless they should be smitten with blight and mildew—diseases which so frequently attack over-stimulated crops. On the thin chalks and light lands of Norfolk, the yield and extent of wheat are increased. Twenty-five years ago it was considered that twenty-six to twenty-eight bushels per acre was the full average yield of wheat for the county. In 1854, Sir J. Walsham estimated it at 30 bushels, and I think we may now put it at 32 bushels or four quarters per acre, but this is fully 4 bushels an acre over the average of the last four years—including, of course, the present harvest. The extraordinary difference of the yield of wheat on moderately light-land farms, in dry or moist seasons, has been furnished me by more than one large occupier. I will not give the details, but simply state that the produce has occasionally nearly reached 12 coombs per acre, and has frequently been less than five, and one year barely reached 3 coombs, while the money return has been in a good season fifteen guineas per acre, and in a very bad one little over £3. The yield of barley is not perceptibly augmented: the estimated produce in 1854 was put at over 38 bushels per acre, and that, I am sure, is fully up to the average yield of the last ten years. No doubt a larger extent is grown, but, as to the increase per acre, the same unfortunate tendency of the straw to lodge hinders even in a greater degree than in wheat the efforts of the husbandman to grow more barley. If the crop, in a rank green and rapidly-growing state, should be laid flat by a heavy storm of rain, not only is the yield considerably reduced, but the quality of the grain is so seriously injured as to be totally unfit for malting purposes, and the next year's seeds are destroyed. Many years ago the yield of barley appeared to have reached its maximum in Norfolk. Sheep, eating a large quantity of cake and corn, consumed chief part of the turnips upon the land, and as much straw as could stand, and sometimes rather more, was produced in favourable years. But on the heavy lands, and indeed on all soils, the practice of sowing barley much earlier than formerly has helped to stiffen the straw and improve the sample. A vast extent of barley on the clay soils, and on other medium and well-farmed lands, is now planted, when practicable, in February, and by this means far better samples of grain are produced, and land that was considered naturally unkind for barley will, in dry seasons like this, produce the largest crops of the best barleys. Although a considerable amount of wheat is grown after mangold wurtzel and early turnips, yet the extent of barley is more than compensated by the gradually increasing acreage of this grain that is sown upon wheat stubbles. I have this year, with a dressing of one cwt. of guano and two cwt. of superphosphate, grown on a wheat stubble, that had been dug twelve inches deep with the steam cultivator in the autumn, the best crop of barley I ever produced, the land being now perfectly clean, and in the best possible condition for next year's root crop. And I see no reason why this extra white straw crop need frighten any land agent, provided always the farm is in a high state of cultivation. Oats are but little grown, the quantity remaining about the same. The extent of beans and peas varies much with the season. When the small seeds have all perished, as is the case this year, a much larger growth of pulse next spring may be expected in Norfolk. Rye, that was once the staple grain-product of our county, is now grown only on the hottest gravels and the lightest sands. Wherever the land can by any possibility grow wheat, that grain is now substituted for rye. The total acreage of the root-crop has not at all increased, but a much smaller breadth of white turnips and a corresponding larger extent of mangolds and swedes is grown. The increase of weight per acre is supposed to be 20 per cent., but this is obtained at a vast outlay of artificial manures. Some good farmers reserve the whole of the farm-yard manure for the wheat, growing their roots exclusively by artificial means, the dressing costing from 30s. to £3 and £4 per acre. The Northumberland or ridge system is still the favourite way of growing roots in Norfolk, but in our arid climate a return to the old flat work may possibly be desirable. Hay is certainly a poorer crop in Norfolk than formerly; this arises chiefly from the failure of the red clover, but the extended cultivation of the sainfoin on all lands that have a calcareous subsoil makes some amends for the loss of the clover.

In some districts the system of cropping has been materially altered, but in the great majority of farms the old Norfolk four-course rotation is rigidly adhered to. Where the five and six-course prevailed 25 years ago there the greatest alteration has taken place, but on the Holkham estate, that home of the four-course, an extra corn-crop after the wheat is somewhat general. I might mention two or three farms that, at the time of Mr. Bacon's report, were cultivated on the five-course, two years being in grass, which are now altered to one year's grass, and followed by two consecutive corn-crops. The produce per acre of these farms appears to be quite as abundant as ever; but the expenditure in artificial food and manure has increased fourfold. It does seem unreasonable, with all the advantages of modern science, that the farmer should be tied down to the same covenants as were supposed to be necessary, and certainly were useful, at the end of the last century. Already the constant repetition of the same crop is acting prejudicially to the Norfolk farmer. Clover sickness is a common complaint, and no chemist can tell us what it is that the clover extracts from the land which our manures do not return to it; nor have they suggested any treatment which has in the slightest degree mitigated the evil. It is feared that turnips are showing signs of a similar ailment; anyhow, it is certain that the same dressing of manure fails to produce the same weight of roots as it did twenty-five years ago. This opens up the whole question of artificial manures. The use of these fertilizers may be still in their infancy, but they have enormously increased of late years. Superphosphates were almost unknown at the time of the last report; bones, rape-cake, and the newly-introduced guano being almost the only artificial manures used. These are still the most reliable of our accessory manures; but superphosphate is now generally employed for the production of roots. The discovery of coprolites has supplied an immense quantity of new raw material for the manufacturer of phosphatic manures. Although some samples may be well and scientifically prepared, I fear the ignorance or selfishness of many manufacturers causes them to vend a very inferior article. No one can estimate the alarming extent to which farmers are victimized in this respect. I have had two samples of superphosphate made by two different firms, both of good local reputation, analyzed, and the chemical report assured me that the manure for which I paid six pounds was not worth three pounds ten per ton. I have also lately seen an analysis of some cheap guano sold at seven to ten pounds per ton which was pronounced dear at thirty shillings. It is not till farmers will all purchase their manures by analysis that any general improvement in these auxiliary fertilizers can be hoped for. When Mr. Bacon wrote, steam-threshing machines were considered a novelty; now there is scarcely a horse machine or flail in the county, the whole of the threshing being done by steam. Recently a few steam-ploughs have found their way into our county, but they are not likely to make much progress in the cultivation of light land unless the cost can be reduced. Reaping and mowing machines have become very general within the last ten years, and the prejudice that once existed against the introduction of these and similar machines seems fortunately dying out amongst the labouring classes. And so it ought; for all farm machinery lightens the labourer's excessive toil, and there are not a sufficient number of hands to perform all the work of the farm at the proper seasons by the old-fashioned means. But it is a curious fact, supported by the unanimous testimony of all my correspondents, that, notwithstanding all this machinery, the increase of the expenditure for manual labour, on arable land, ranges from 15 to 20 per cent, and is generally as much as the rent of the farm, varying from 25s. to 35s. an acre, and in my own case exceeds 40s. The wages of the agricultural labourer have also in the same time been raised by nearly two shillings per week, and it is quite certain they will not perform the same amount of work on this increased pay. This is easily proved by comparing the price of piece-work with what it was a few years ago; but, as the agricultural labourer will form the subject of two separate papers, I will not venture any further remarks on the subject, beyond expressing my thanks to you, Mr. President, for the sound and practical advice you offered in summing up the discussion on Saturday. You stated, Sir, that in your opinion one great reason for the unsatisfactory condition of the labouring population was their ignorance of *political economy*, and the chief

hope you had of any improvement was their being taught the groundwork of this great science. In that I most cordially agree, for I protest against the partial application of scientific theories to agriculture. Hitherto political science has been applied only so far as it favours the consumer. You have exposed our agricultural produce to the competition of the cheap labour of the world, and to successfully hold our own, we must have cheap labour too. In my small way I have done what I can to improve the condition of the agricultural labourer, and though I am ignorant of science, I believe my ideas are closely allied to sound political economy. I contend that the price of labour must in a great measure depend on supply and demand. In seasons of great mercantile activity our young labourers migrate by scores and hundreds to the north and to London, without the aid of any registration societies, for our great employers of labour have agents all over the country always looking out for strong active hands. Even our old labourers are not ignorant of the rate of wages paid elsewhere, but they know that high wages invariably mean longer hours, more work, and expensive living. Political economy would also tell the agricultural labourers that the way to raise their condition is not by combining together to do as little work as they can in a day, but to improve the quality of their work, and so earn more wages. But to tell us farmers that we must give more wages in order to make the men do more work is about as reasonable as for me to go to a merchant and complain of his oilcake being exceedingly bad, and when he says that is the best he can afford at the price, I should, in order to encourage him to supply a better article, give him 5s. per ton more for his adulterated cake than I could buy it for elsewhere. I believe that every young agricultural labourer has the means of acquiring the most perfect independence, but he must learn to rely on his own industry, skill, and frugality, and not upon charity, an easy-going master, or the parish, for his support. Leases have not increased. There may be a few more agreements for twelve or sixteen years, determinable every fourth year; but I fear that the great bulk of the land in East Norfolk, and indeed in many parts of the West also, is held from year to year subject only to a six months' notice to quit. There is also no recognised system of tenant-right, which is common in Lincolnshire and in some other parts of England; but on a few estates some liberal clauses are inserted in the agreement, securing to the outgoing tenant certain payment for his unexhausted improvements. There are several estates which are farmed by the same families for generations without any sort of agreement, and on those estates the rents seldom vary. The farms are in excellent order: money is invested by the tenant as if he had the longest lease; and the most excellent understanding and the most perfect harmony prevail between the owner and occupier of the soil. It is indeed delightful that this mutual confidence should exist: it is the natural pride of some of our aristocracy and those who farm under them; but however well founded and laudable this feeling may be, the death of either party may quite alter it, and to say the least of it, it is an unbusiness-like way of letting land. The rent of land has risen during the past twenty-five years from ten to twenty per cent. in the west, and from five to fifteen in the east division of the county. The tithes that were not commuted in 1843 have since been apportioned; and thus one great hindrance to improved farming, and a constant source of ill-feeling between the parson and the farmer has been got rid of. The assessment of the county to the old property, or great war tax, was £1,439,977; in 1843, the sum was £1,945,558; and last year it amounted, upon schedule A, to £2,395,362. The county-rate assessment is £1,991,676. Poor's rates do not seem to vary much. Some years previous to Mr. Bacon's report, it was common for these rates to reach £350,000; but they averaged, in the seven years ending 1857, only £227,682. They are again on the increase, for the poor's rates, with the receipts in aid thereof, were last year £245,661. The county and police rates in 1842 were only £16,900; in 1857 they had risen to £27,247; and last year the county receipts amounted to £40,342. Of this sum, nearly £13,000 was raised by the police-rate; £14,000 by a general county rate; the rest came from Government and other sources, leaving a balance of £8,895 in hand. There can be no doubt that the question of county rates, and indeed all local taxation, will early come under the notice of the new Parliament. It is a question so large, so

absorbing, and so important, that I must be content with simply mentioning it here; but I may, in passing, observe that this great increase of county expenditure in Norfolk is not attributable to any neglect of magisterial oversight, but rather to the new burdens which Parliament continually heaps upon the real property of the kingdom. And it should also be remarked that almost the whole of this increase is borne by the clergy and tenantry rather than the landowners. The increase is so gradual, so imperceptible, that no tenant can calculate it when he hires a farm. So there is no difference made in the rent, and any increase of the rates falls upon the tenant, while for similar reasons any saving, which is indeed of rare occurrence, finds its way into the occupier's pocket. The drought of this year is one of the heaviest visitations which has ever befallen the agriculture of Norfolk. Happily, we grow a full average crop of wheat, the loams, clays, and fen lands making up for the deficiency of the sands, gravels, and thin chalks. But there is only half a barley crop, and not more than a similar return of other spring corn and pulse. Hay is very light, and next year's grass seeds are burnt clean up. But the greatest blow to the Norfolk farmer remains untold: it is the loss of his root crop. For this nothing can compensate. It is not simply the value of his turnips, but as roots are the foundation of his course of cropping there is the prospective deterioration of his round of cereals till turnips come again. In no other county in England have such great results been accomplished by the application of the calcareous substrata to the surface soil. Farmers seem to have hoped that liberal doses of artificial manure would have prevented the necessity of expensive coats of clay, marl, &c. But they have failed to produce the good chemical effects of these dressings, and, of course, do not consolidate and improve the texture of the land in a similar way. Under-draining is not much needed, but where recently attempted has been executed better and at a greater depth than formerly. Sometimes the landlord does all the draining and charges the tenant 5 per cent. on the outlay, but more generally the owner finds the pipes and the tenant the labour. Farm buildings were always pretty good and still maintain their superiority, but in a county where so little rain falls and there is plenty of straw, covered yards are not much cared for. Great changes have taken place in the fences, especially in West Norfolk. Formerly the white-thorn fences were 10 or 12 feet high, but they are now reduced to about 4 feet, and are kept carefully trimmed. Fields have been made larger by the removal of useless fences, and much hedge-row timber has been grubbed on the Holkham and other large estates, but a still further improvement in this direction is needed in many parts of Norfolk. Railways have greatly accelerated agricultural progress. Thirty years ago no part of the country was more inaccessible than Norfolk. Now we are fairly supplied with trunk and branch lines, and every portion of the county, save the N.E. district, has been benefited by railroads. Perhaps the farmers of the west are rather more gainers than those of the east, who had always such excellent and cheap water carriage at their command. But I think I am fully justified in stating my conviction that no part of England is so wretchedly served by railroads as East Anglia; the Great Eastern being by universal consent the dearest and worst railway out of London. However great the benefits which railroads have conferred upon Norfolk agriculture (and I am not unmindful of them), the wretched mismanagement of the whole system has been the means of administering those benefits in truly homœopathic doses. The East and West Norfolk Agricultural Associations were amalgamated in 1846, and after holding several meetings alternately at Norwich and Swaffham, have recently, with much greater success, held the annual exhibitions at all the chief towns of the county. The few farmers' clubs existing at the time of the last report have all died out; but we have now a flourishing Chamber of Agriculture and Farmers' Club, which embraces the whole county. Through the courtesy of the Board of Trade, I am enabled to bring down the agricultural statistics of our county to the present year. We have also in Norfolk the advantage of an early attempt to obtain these returns, as Sir John Walsham in '54 collected some very reliable figures as to the number of our stock, and the acreage of our crops; and even a return of *Arbores*, which timid governments have never since attempted. I can, therefore, furnish authentic returns for four years, viz., those of 1854 and 1856, 1857, and 1858—

## RETURN OF LIVE STOCK IN NORFOLK.

	1864.	1866. (in March).	1867.	1868.
Total cattle.....	99,000	92,000	103,000	122,000
Cows, &c.....	36,000	24,000	27,000	27,000
Other Cattle.....				
Over 2 years old...	59,000	39,000	40,000	59,000
Under 2 years old	15,000	23,000	34,000	35,000
Total sheep & lambs.	841,000	696,000	776,000	847,000
Old sheep.....	468,000	405,000	454,000	509,000
Lambs.....	373,000	191,000	321,000	341,000
Pigs.....	99,000	115,000	144,000	92,000
<b>CROPS.</b>				
Corn crops of all kinds	442,000	446,000	455,000	455,000
Wheat.....	202,000	189,000	195,000	209,000
Barley.....	173,000	186,000	191,000	181,000
Oats.....	36,000	34,000	32,000	33,000
Green crops of all kind.....	189,000	194,000	200,000	190,000
Potatoes.....	1,000	5,000	5,000	6,000
Turnips, &c.....	161,000	134,000	144,000	143,000
Mangolds.....	16,000	34,000	35,000	29,000
Bare fallow.....	10,000	8,000	8,000	12,000
Clovers, &c.....	171,000	147,000	163,000	120,000
Permanent pasture (exclusive of heath land).....	192,000	208,000	214,000	211,000

Extent of the county, 1,354,301 acres. Pop. in 1867, 430,319.

It would appear from a glance at the live stock returns, that our cattle are happily increasing, and we have perhaps recovered the usual amount of our summer stock previous to the outbreak of the cattle plague. The sheep, though 70,000 more than last year, are still hardly in excess of the returns of 1854. Pigs were so dear in 1866, in consequence of the cattle plague and high price of sheep, that they rapidly increased; but in 1868, the low prices of last year have told upon them, and their numbers have fallen off by nearly one-third—viz., 42,000. We may reasonably hope that these returns now exhibit a trustworthy exactness, as the total acreage of corn is within a fraction the same this year as last. Wheat has increased something over four per cent., and this small addition will probably astonish those newspaper writers who have stated that a third more land was planted with this grain. If we take the increased breadth at five per cent. over the whole of England, that will be about 160,000 acres, and 32 bushels per acre will give a yield which will supply the country with ten or twelve days' bread. Barley is reduced in a somewhat greater ratio than wheat is increased, and the falling-off in mangolds, turnips, &c., is owing to the peculiarly dry season; but at the present moment, instead of 140,000 acres of turnips, as stated in the statistics, we fear that the same weight of roots is frequently grown on 20,000. What has caused the artificial grasses to fall off 43,000 acres is a mystery; I will venture to predict that the extent will be further curtailed next year. In 1854 Sir John Walsham stated that the counties of Norfolk and Suffolk produced 267,000 acres more wheat and barley than the whole of Scotland, and also computed that Norfolk alone grew 1,290,373 more bushels of wheat than all the land north of the Tweed. But compare the extent of wheat now with that grown ten years ago. In 1857 the acreage of wheat in Scotland was 243,240 acres; last year it had decreased more than one-half, and had fallen to 110,609 acres, or 85,000 acres less than we grew in Norfolk. We hear a vast deal of the decrease of the cereals in Ireland, but this great falling off of wheat is larger in Scotland than Ireland. Scotland is rightly held up as an example to the farmers of England, and in this respect we should do well to follow her, for she finds that wheat growing will not answer at the prices current a few years ago; so she drops it and sticks more than ever to oats, which suit her cold soil and damp climate. It is a pleasing fact that very few Norfolk farmers now object to making these annual returns. I, however, question their ultimate use beyond strictly statistical purposes. The yearly variations in the acreage of crops will not cause anything like the difference in the amount of wheat grown as a week's rain or a night's blight, and I do not believe that estimates of the yield of the growing crops, even if given by the farmers, can ever be thoroughly relied upon. My own impression is, that after the accuracy of the present returns has been tested for a short series of years, agricultural statistics need only be collected triennially, septennially, or at any other given interval, to be, in fact, in a sort of stock and crop census, and might then be made compulsory. We now

come to a somewhat speculative portion of this paper, but still it is one without which the inquiry would be incomplete, and it is that from which we may hope to glean the greatest benefit for the future. I concluded the list of questions to my correspondents with the request that they would name what they considered "the chief hindrances to the progress of Norfolk agriculture." One contended that a great evil was the bad qualities of artificial manures; others were of opinion that increasing expenses and poor and fluctuating returns militated against the employment of capital. A smaller number suggested that the increase of local and general taxation fell with crushing severity upon the occupiers of the soil; and a body of influential agriculturists emphatically declared that the "increasing wages of the labourer and the decreasing amount of work done in a day by the general run of them," would be the chief hindrance; but the almost unanimous reply may be summed up under four heads: *insecurity of tenants' capital—the malt tax—over-preservation of ground game—and the increase of diseases among our stock.* It is worthy of note that in complaining of insecurity of tenants' capital, no mention is made of the law of distress—a subject which, under the queer term "hypothec," creates such a strong feeling amongst the farmers of Scotland. Norfolk tenants wish to preserve all the existing rights of the owners of the soil: they only want some legal protection for their own property. As a Norfolk man, I much prefer the security of a lease, and every landlord who wishes permanently to improve his rent-roll would do well to grant them. Let a yearly tenancy be ever so cheap, the time that the landlord fixes upon to raise the rent (except when seeking a new tenant) is always unfortunate. If prices are good, crops are bad; if meat is dear, stock are unhealthy; even should all things be prosperous, the tenant hopes that the landlord will not take "advantage of" him for another year. But, at the end of a lease, the tenant naturally expects a fresh arrangement, which usually means an advance of rent; and, if the increase is a moderate one, he cheerfully pays it, and enters upon a fresh lease with the determination to use his skill, energy, and capital, not only in getting his own living, but in still further improving his landlord's estate. If landlords object to grant leases (and I freely confess it is not advisable to do so indiscriminately), at least there should be compensation for unexhausted improvements. Most persons connected with the land are terribly frightened when the term "tenant-right" is breathed, and they say it might be made a means of extortion, and the landlords would be plundered right and left. But is it so where tenant-right is the custom of the country? Look at Lincolnshire. There are no leases on the wolds of that county, which is as well farmed as West Norfolk; but there is an equitable system of tenant-right which answers admirably, so that when a tenant quits his farm he is paid for the unexhausted improvements he leaves behind him. I was talking the other day to a Lincolnshire landlord, and he seemed surprised that the system did not exist in other counties: he said he had never paid a penny for tenant-right himself; it was always a question between out-going and in-coming tenant, and the landlord knew nothing about it save in the exceptional case of buildings and other suchlike permanent improvements. A word or two about the Malt-tax. We are met by this sort of argument: "Prices are higher, the acreage of barley increases—leave well alone." To this we reply, free trade has taught us that we can grow barley better than any other country in the world; it is our *speciality* in grain; almost the whole world can produce wheat, better wheat than we can. Norfolk is not like Ireland and Scotland. We cannot reduce our tillage and increase our grass, and so decrease our expenses, and employ only half the labourers. We in this dry climate, and on these poor soils, must grow grain, and we must have a rotation of crops, and if only one sort of corn really pays, we can produce on our arable land more meat than if it were all pasture, and grow all the corn besides, which must be a benefit to the country. And if the chief part of the world can grow wheat, and only a portion of it produces prime barley, if there was perfect free-trade, there is no reason why the price of barley should not equal that of wheat. But even those who admit the injustice of exposing the British farmer to the competition of the whole world, and taxing his barley 60 per cent. in the first stage of its manufacture, say, "We can't spare the six millions the Malt-tax brings in." The greater the tax the greater the in-

justice, and surely Parliament might at least apply the true principle of all taxation, by levying the duty on the manufactured article, and not on the barley directly it is wotted for malting. Now to the vexed question of game. Mark, none of my correspondents complain of the *Game Laws*, and none of *winged game*. It is all one and the same cry, the *over-preservation of ground game*. There can't be too many partridges, and even pheasants do comparatively little harm, but no man can farm against hares and rabbits, and no abatement of rent can compensate him for the loss of his crops. If a farmer with his eyes open likes to hire a cheaply-rented game farm, I don't suppose, however much we may pity his want of sense, or grieve over circumstances which may have forced him to this refuge of the destitute, or greatly as some may deprecate the questionable use the owner makes of his land, that there is very much for farmers or the public to complain of. But when land is let at its full value, and then stocked with running game, or if hares and rabbits greatly increase during the continuance of the lease or tenancy, then, and it is no use mincing words, such game preservation, whether practised by the most mighty prince or the smallest squire, is a wrong and a robbery. The last cause of complaint is by no means and at no time the least, and it is at the present moment particularly forcible. The losses of stock from new diseases during the past twenty-five years have been most appalling, and when they are fairly estimated, at once account for the enhanced price of meat. No mention is made in the report of 1843 of pleuropneumonia, or foot and mouth disease. It will be remembered that the free importation of foreign cattle commenced in 1842, and shortly after that date the two diseases I have mentioned found their way into Norfolk, and continued with varying severity to ravage our herds and flocks, till they were almost extirpated by the cattle plague restrictions. There can be no doubt that pleuro and this epizootic epidemic are foreign diseases. They have been known in Holland and France from time immemorial, and though we have no evidence of the actual introduction of either of these contagious disorders into this country, we know that soon after the general admission of foreign stock, both became prevalent here: and we, who have attempted to graze foreign cattle, are aware, to our cost, how singularly subject Dutch cattle are to pleuropneumonia. Small-pox in sheep prevailed to a frightful extent in Norfolk in 1848, and we were badly hit by the cattle plague in 1865. That latter visitation was manfully met in Norfolk, and though five or six thousand head of cattle were destroyed, few, if any, cases of individual ruin followed. We started at the outbreak of the disease the "Norfolk Cattle Plague Association" and collected by rates and subscription upwards of twenty-six thousand pounds. The observance of the orders in Council were enforced on all the members, every effort was made to stamp out the plague, and though not completely successful, it was confined within reasonable limits. After paying two-thirds of all the losses, we have now a balance of four thousand pounds invested in the funds to meet a fresh outbreak, or any similar agricultural calamity. The cattle plague has taught us many a lesson. Amongst the chief is this: that by bold and decisive measures, we have not only got rid of this pest, but we have well nigh eradicated those other foreign diseases that for a quarter of a century have found a home in this country. The stoppage of the importation of all stock not intended for immediate slaughter, and confining fat cattle to the ports of debarkation, and the restriction and regulation of the sale and transit of our own stock, have accomplished this, and never were our cattle and sheep more healthy than they have been for the last two years. True, we have our old complaints and local disorders to afflict us, and we may expect plenty of disease amongst our young sheep this autumn, but our stock are in a singularly good state of preservation, and we believe that the only way to keep them so is to stop a further introduction of cattle plague, pleuro-pneumonia, small-pox, foot and mouth disease, and scab, by the establishment of waterside markets for the slaughter of all foreign stock. The public ought to know that *healthy stock* means, in ordinary seasons, *cheap meat*, and, as the foreigner at present only sends us one-twelfth of the cattle and one-twenty-fourth of the sheep that are slaughtered in the United Kingdom, it is the direct interest of the consumer to keep our home

stock free from disease. Statistics prove that more British cattle have died from foreign disorders than have been imported from abroad; but when we ask for the adoption of the very best plan for keeping out these diseases, we are charged with seeking renewed protection by the exclusion of foreign meat. This one subject of the sale, transit, and slaughter of stock would occupy more time than is allotted (even by special indulgence) to my paper, so I must bring these crude remarks abruptly to a conclusion, and I will sum up my whole case in a few words, which, although written ten years ago, are still more applicable at the present time. "The Norfolk farmers delight in the idea of producing large supplies of grain and meat for the increasing multitude, but their business object in manufacturing these necessities is not to feed the public, but to make farming pay. At reasonable rates this high farming will answer; with very low prices of grain common four years ago, or great mortality amongst stock, it cannot. All the many leading agriculturists of the county, who have been consulted, declare that farming requires more capital than care; but the profits on the money invested are much smaller than formerly. Farmers' expenses increase, and though of course their receipts are also more, they have not yet increased in the same proportion. There can be very little doubt of the truth of this conclusion—that improved farming means, in other words, the judicious application of more capital to the cultivation of the soil; and as the broad acres of old England cannot be made broader, it is the duty of every British yeoman to make them more productive; but he wants, like other producers, to live by his occupation, and expects to be paid for his time and his capital. If the nation require the farmer to produce more of the necessities of life, every obstacle which now hinders improved agriculture should be removed, and every facility afforded for the security of that capital which the tenant must now, more than ever, embark in the cultivation of their farms."

Mr. WILKINSON said he was aware that Mr. Read's paper referred especially to the improvements in agriculture in Norfolk; but as that which would improve the soil in Norfolk would do the same in other countries, he thought he might be permitted to say something with regard to agriculture as it was pursued in the counties immediately adjacent to the metropolis. In the first place, with regard to wheat, his experience was this: A part of his wheat was so very thin this year, that he almost determined to plough it. Instead of doing so, however, he left it to take its chance, merely applying about 30 bushels of soot per acre. The result was, he was happy to say, that he had the best crop of wheat within a long distance. As to barley, he observed that Mr. Read's paper stated that it was improved by early sowing. He had adopted the plan of early sowing with regard to oats, and he found that this year he had been able to bind his oats in sheaves. With regard to mangold wurtzel, he had obtained his ammoniacal liquor from some gas works, and by the application of that liquor he had raised the largest crop of mangold wurtzel which he had ever had. He supposed the yield was from 20 to 30 tons per acre. He would say one thing more in the way of comment upon Mr. Read's remark in reference to game-keeping. Mr. Read had very properly said that the rent of a farm on which game was closely preserved ought to be diminished if the game increased; but for national purposes, and for social purposes, and for the bare purposes of humanity, he (Mr. Wilkinson) would say, was it not desirable—considering that the acreage does not enlarge in this country, while the population does very materially enlarge—that the gentry in this country should make a sacrifice for the benefit of the country at large, and have the game-laws wiped away entirely? (Loud applause.)

The Rev. J. C. EBDEN, of Great Stukely, said he had been for thirty years the incumbent of a heavy clay land parish in the neighbourhood of Huntingdon, and during the time of his occupation the agriculture had wonderfully improved, and particularly so in the last two or three years. Machinery had been introduced with great advantage—the steam plough and reaping machines and others; but manual labour had not at all decreased, but rather increased, especially in one direction: he referred to the very great increase which had taken place in the employment of young children of the village. Children of six years of age and under were employed in the fields under the eyes of their parents or neighbours for the extirpation of couch grass and weeds of various kinds that infested the soil.

He supposed the reason was that these little creatures could more easily stoop upon the ground for the purpose than their older relatives. His object in mentioning the circumstance was to ask Mr. Read whether that kind of employment for the children did not rather interfere with educational purposes.

Dr. EADE said he was largely concerned in the investigations which were made by the local committee on the subject of the cattle-plague; and he wished to say a few words, because it rather appeared to him that people were inclined to let that subject pass by, as less interesting than many of the other points raised by Mr. Read. He thought he could show that it was in every sense as interesting as any of the other points which had been mentioned. One of the first things which struck him in investigating the disease was the very close resemblance it bore to the eruptive fever known as scarlet fever. If, therefore, it could be shown that this disease of cattle-plague, though not identical with, at all events approximated in character to scarlet fever, it would be at once apparent that it was most important to every man and woman present. Unluckily, they had now in this district an epidemic of scarlet fever sweeping over them; and, consequently, there was not a fact or statistic connected with the cattle-plague which did not concern them all. He had had the very amplest opportunities of watching the outbreak in Norfolk. One point which was worthy of remark was the enormous fatality of the disease. In scarlet fever a large proportion recovered; but almost the entire number of cattle attacked died. The beast got ill, and almost as certain as it got ill it died. The next point was the intense contagiousness of it. Almost every animal exposed to it took it: not only ox from cow, and cow from ox, but sheep took it from bullocks, and deer from sheep, and so on. Another point was, that it seemed to follow the same course as epidemics: The sagacity of one of the worthy vice-presidents of this section (Dr. Farr) pointed out this. He said that it was, like other epidemics, most malignant, and foretold that it would pass in a certain course over the country, and then gradually subside. Another gentleman present pointed out that, in regard to the cattle-plague, we had to deal with life, but not with life which was so valuable as human life; and therefore the best way was to get rid of the subjects of the disease, so as to stamp it out. They all knew that that was a most beneficial course. Then the next thing to consider was the nature of the cure. It was well known that the eruptive fever called scarlatina was now believed to be due to the introduction into the system, and its presence and growth there, of something which was living—some living germs which, if they do not destroy the subject during progress, naturally come to an end, and the patient recovers. Well, this, in every sense, seemed to be borne out in the observations made on the cattle-plague in this district. Unfortunately, its prevalence was so great that it killed a very large proportion; but when it did not do so, the animal gradually recovered, and the disease entirely passed away. This was all he thought he ought to take up the time of the meeting by saying; but he would impress upon them the importance of the reports upon the cattle-plague, as bearing upon the scarlet fever, because every single thing that was known of the former might be the means of saving the lives of one or more members of their own households.

Mr. BOTLEY said they had all listened with great interest to Mr. Read's paper, and he was happy to find that as to wages and the payment of wages there was an improvement. What was wanted was better work and better wages. He would not draw so gloomy a picture as Mr. Read had done of the failure of some of the crops. The produce of others being very large would, he hoped, yield to the farmer something to compensate for the deficiency. With respect to the root crop, it was no doubt of the greatest importance to the breeding farmer as well as to other farmers; but at the same time he might say that in the South of England, and also in the West and North, he saw that wherever there was a great preparation made for root crops, and these root crops had failed, that preparation

had proved so excellent for the land that the wheat or barley, or whatever it was that was sown, afterwards, compensated for the great amount of labour and artificial manure applied to the land. Therefore it was not such an evil as Mr. Read thought. They must all agree in regard to what had been said about the game-laws.

Sir WILLOUGHBY JONES said he had listened to the paper with extreme pleasure, and he believed when it came to be read in print it would surprise many persons by the immense amount of facts compressed within a small compass. It would be felt that the subject could not have been in better hands. He wanted to say just one word upon the subject of tenant-right. Mr. Read mentioned the desirability of leases and of tenant-right being recognised. As example was better than precept: he (Sir Willoughby Jones) was happy to say that in the part of Norfolk in which he resided leases were the rule, and tenant-right was not wanted. When a tenant took one of these leases he paid for the root crop on the land, and for the manure in the yard. The in-coming tenant paid to the outgoing tenant as nearly as possible one year's rent in addition to the manure in the yard, which was valued at so much per load. As to the tillages, the only sum which the out-going tenant had spent in the cultivation of root crops he got back from the in-coming tenant, but beyond that he did not go. If he did he would be depriving him of the capital which he would require for the proper management of the farm. It must be recollected that the incoming tenant was put in the same position afterwards, when he gave up the farm. Therefore, it was as broad as it was long. As long as the actual money out of pocket was paid for in the shape of root crops, and a good long lease of fourteen or twenty-one years was granted, the tenant was tolerably secure, and almost as much so as if the land were his own. There was one matter which Mr. Read had not alluded to, but which he (Sir W. Jones) was quite sure would make a great improvement, and that was the alteration in the law whereby paupers were now made maintainable by the union, instead of by their own single parish. That alteration would, no doubt, ultimately prevent the people being driven, as they had been, into open parishes, and compelled to go a long way to their work. The evil of that was more than he could describe. 'It was a most terrible evil (Hear, hear). As long as the old law continued, by which the parish in which a man lived was obliged to support him, there was no hope of breaking through that system. Now, however, the closed parishes paid just as much of the rates as the open ones, although they had not the advantage of having labour at hand. The result was that they would build cottages. He saw a cottage spring up here, and another there; and he knew that the tenants of large closed parishes were everywhere applying to the landlords to get them to build labourers' cottages. That would be a great benefit. With regard to analyses of manures, he could only say that he found some manure which he had purchased to contain a very large proportion of useless matter, and he returned it, and got his money back. In his own farm, every single bit of wheat had been cut without a scythe being put into the ground at all, which, in the recent hot weather, was very agreeable to the men, who get the same wages as before.

Dr. FARR said the county of Norfolk was the first district which published an account of the cattle-plague; and the public were very much indebted to Dr. Eade and others for being enabled to understand the nature of it. He would ask the farmers to pay the utmost attention to the sanitary condition of their cattle, and particularly as to their being supplied with water.

Several gentlemen rose to address the meeting, but

The PRESIDENT said the discussion must not be prolonged.

Mr. READ, in reply to the question which had been asked by the Rev. J. C. Edden, said that when a machine which had been invented was brought into operation, the couch grass would soon diminish, and there would be no necessity for the employment of children for the purpose of extirpating it.

## ON STALL-FEEDING.

The following practical paper was read at the meeting of the Limerick Farmers' Club by Mr. E. L. HURR:

Mr. Chairman and gentlemen, it has been said by one of the wisest men that ever lived, "Behold that which I have seen: it is good and comely for one to eat and to drink, and to enjoy the good of all his labour that he taketh under the sun all the days of his life, which God giveth him; for it is his portion." The same wise man also said—"Whatever thy hand findeth to do, do it with thy might." Gentlemen, it is a pleasant thing to enjoy the good of one's labour. What is more pleasant than after a long day's walking over your farm, or a toilsome day at a fair, where both mind and body have been on a strain from an early hour, to find a cheerful and loving welcome before you, to find a bright fire and brighter faces to smile upon you, and to find a roast sirloin, well cooked, smoking on your table? Talk not to me of your dinners "à la Russe" at such a moment as that; they may do to tempt the worn-out appetite of the satiated voluptuary. Give me the undercut of the sirloin, that noble joint, that merited knighthood from the hands of a discerning monarch. And when it was entitled to the fiat of nobility at such an early period, now that we have turnips and oilcakes to assist, we in the nineteenth century should bring it to such perfection of richness (and fat, I was going to say, your grace) as would entitle it to the very highest honours that royalty can bestow. Let us now try to bring it to that exalted position, at least in theory. At our last dinner a most valuable paper was read by my friend Mr. Macdonald, and many of you, I make no doubt, have put in practice what was so ably brought before you that evening, and are, I trust, reaping the benefit of doing so by having (as I have), with God's blessing, the certainty of a heavy crop of turnips, the foundation stone in my opinion on which we must lay the firm basis of all good farming. Let us come on to the 20th of next October, and have forty or fifty tons of swedes, heaped and well thatched near as possible to the turnip house. It would be better to have all the crop stored before frost; but few will do so, as in such mild winters as the past, and where the land is not wanted for winter wheat, the turnips keep far better in the ground, and in my opinion continue growing in weight much longer than the generality of farmers imagine. Therefore I say, have forty or fifty tons well stored, to be only used on wet days, when the land would be poached by carting on it, and also in case of frosts; for nothing is more injurious to cattle in stall than frosted turnips; better to feed on hay and cake till the frost is completely out of the roots than to put back the improving in your cattle by giving such ruinous food. This is a matter of the very greatest consequence to stall feeders, and, indeed, to every farmer that grows turnips. The next thing, sir, is the house. This is a tender subject, and at this meeting must be carefully handled. Far be it from me to infringe so much on one of our most valuable rules as to touch even slightly on political questions; and the building of farm-houses is now a question which, like most others, has been converted into a political one. It may be a fashionable and very agreeable amusement to some people to be constantly bating and abusing in unmeasured terms our Irish landlords; but they, in my opinion, are a much wronged class. I believe that for humanity, sociability, and every other good quality, the resident landlords of Ireland stand pre-eminent above those that abuse them, as they do in wealth and social position. The best house for fattening cattle is by far the cheapest in every way; but let no man be deterred from stall-feeding because his house or houses are not what they should be. I have seen splendidly-finished cattle brought out of very miserable-looking places, but to do so requires extra care in ventilation and keeping the house and cattle clean—in fact, it takes much more labour to do it, and labour is money in its most unpleasant form. There are many old houses on farms that by a small but judicious outlay could be converted into excellent fattening houses; and though I do not in any way approve of thatch, still one of the very best and healthiest houses I ever saw was a thatched one. As we have architects members of this Dining Club, I shall leave it

to them to write a paper on house-building, and they will tell you that no feeding-house is perfect without a passage before and behind the cattle. On the length of the house the beasts should be tied, and the turnip-house at one end; or, if the house is very long, the turnips in the middle, and communicating with the front passage by a door, the cutter so arranged that the sliced turnips fall into waggons, which move on a tramway, and are given to the cattle with a large shovel, as the wagon passes along. This saves an immense amount of labour, and allows all the cattle to be fed so quickly that they do not become fretful or impatient, as they do when the process of feeding is more slowly carried on. A liquid manure tank, perfectly water-tight, with drains made of tiles running into it from the feeding-house, should never be forgotten. I believe timber to make the best troughs. Some prefer flags, which are, of course, more permanent, but I think not nearly so pleasant or comfortable for cattle to eat out of. The mode of tying cattle in stall is a subject on which many feeders differ. I prefer a chain round the neck, fastened at either side to upright iron bars, placed 3 feet 6 inches from each other, the connecting chain fastened to the bar by a ring that gives the animal great freedom to stand up or lie down. This mode is objected to by others, who say that cattle are more liable to getting slices of turnip stuck in the throat when they have power to throw up their head as high as they please when feeding. I have not found such to be the case, and I have had pretty good experience. Of course, there is not a year passes but some of my stall-feds have got slices stuck very firmly in their throats, but I never had a beast choked, or lost one by the inflammation caused in a great measure by the roughness used in extracting the piece. Some beasts are so formed that they cannot swallow the smallest slice. If a good thriver, better feed on hay as a store for the coming year's grass, or have a pulper and grind the roots. I have, of course, a tube, but, if possible, I will not allow it to be used. My man always gets the slice away, up or down, by gentle manipulation, till he feels that it is loose, and then the beast either coughs it up or swallows it, by giving a bottle or two of water. Care should be taken not to give the animal turnips for two or three days after. I always give cabbage till the irritation in the throat passes off. This mode of treatment would not answer if it was a small turnip or potato that had to be got away; but I never saw a slice that would choke a beast suddenly; and I believe ten are killed by the injudicious use of the tube, to one that is lost by the treatment I have described. We hear, over and over, from different parties that stall-feeding does not pay; but, gentlemen, if you only saw the description of cattle that those parties try to fatten, you would not be surprised that they find the speculation a losing one. I am of opinion that the great question of profit or loss is generally decided the day the selection is made of the beasts intended for fattening; also the condition they are in when tied-up. The proper time for doing so is the end of October or early in November. Care must be taken to have them all housed before the wet, or cold weather tells on them. Full-grown cattle generally fatten quicker than those that are growing; strippers, the mothers of one or two calves, are about the best and quickest to fatten, and leave the most profit. Fine heifers make, of course, a better, or rather a more fancy class of beef, and at times are more easily disposed of; but the question is—do they pay as well? I think not. Three-year-old-bullocks, or if they can be got, four-year-old, feed remarkably well, and make an immense quantity of valuable manure (which is the friend that pays the tillage-farmer's rent, and gives him peace and comfort, if he devotes proper attention to it); but you must be very strong in straw and litter to put in many bullocks, as they use up much greater quantities of it to keep them dry and clean than cows or heifers. Avoid small cattle as much as possible. As a rule, they eat much more than big beasts in proportion; and I have seen a small beast eat as much as one 1½ cwt. heavier. However, no general rule can be laid down for the best size, as the feeder must in a great measure be guided by the market he intends selling

at, and the description he can lay in to the greatest advantage. One thing, gentlemen, you may rest assured of—the more of the shorthorned improved blood you have in the stock, the more pleasure and profit the feeding of them will give you, no matter whether the food given be turnips and straw or the highest pampering you can invent. Herefords and their crosses feed well, but not better than the shorthorn, and in this county they are scarce. The West Highland are a good breed to fatten, but they require to come to age, and are often wicked. The polled Angus is also a splendid beast, but they are not bred to any extent in this country; but even if all I mention were plenty and easily come at, I would still prefer the improved shorthorn. In selecting your cattle, you should be most particular as to symmetry, level along the back, and all the different points that the feeder ought to know fully developed; the skin not tight nor hard, and the coat glossy and soft. The time of feeding should be uniform, early in the morning, mid-day, and late in the evening, so as to divide the twenty-four hours as evenly as possible. I make every beast I have to be well curried and brushed once a day, and am most particular about the cleanliness of the house, its ventilation, to have the light and air increased or diminished when necessary. At first the turnips should be given in small quantities, and be increased as the cattle get used to them, and the quantity ruled by the state of each beast's bowels. A surfeit is, above all things, to be avoided, and more roots should not be given than the beast can easily eat. Better stint a little than gorge. The quantity of ground corn, I think, must be regulated by the market value of the article and the price of the beef to be made by it, and the feeder must act accordingly. When barley or oats are cheap—say, at 9d. a stone, better, I think, to send it to market on your beast's back in the shape of beef; but when over 9d. a stone, I would substitute something else—say, linseedcake or rapecake, which give back in manure so much more of the first cost than home-grown corn. The following is an extract from Mr. Lawes' table, showing the estimated value of the manure obtained from the consumption of one ton of different articles of food, each supposed to be of good quality of its kind:—

No.	Description of Food.	Per ton, present market price.	Estimated money value of manure from 1 ton of each kind of food.
		£ s. d.	£ s. d.
1	Decorticated cotton cake	11 10 0	6 10 0
2	Rape cake	7 0 0	4 18 0
3	Linseed cake	11 0 0	4 12 0
4	Malt dust	6 0 0	4 5 0
5	Beans	11 0 0	3 13 6
6	Peas	11 0 0	3 2 6
7	Oats	9 10 0	1 14 6
8	Wheat	17 10 0	1 13 0
9	Indian corn	9 0 0	1 11 6
10	Barley	11 0 0	1 9 6
11	Clover hay	4 10 0	2 5 0
12	Meadow hay	3 5 9	1 10 0
13	Oat straw	—	0 13 6
14	Wheat straw	2 0 0	0 13 6
15	Barley straw	1 10 0	0 10 6
16	Potatoes	6 0 0	0 7 0
17	Mangels	1 0 0	0 5 0
18	Swedish turnips	1 0 0	0 4 3
19	Common turnips	0 12 0	0 4 0
20	Carrots	1 10 0	0 4 0

One ton of meat (best quality) sells for 7½d. per lb., or 5s. for 8 lbs.—say that it takes 8 lbs. of corn or cake to make 1 lb. of meat:

One ton of meat .....	£70 0 0
8 tons of rape-cake, at £6 10s. ....	£52 0 0
Cost of carting, &c., at 6s. per ton ...	2 8 0
	54 8 0
	£15 12 0
Value of manure .....	39 4 0
Profit .....	£54 16 0

Taking this estimate as correct, you will see the great advantage of using cake in addition to turnips; but it should at first be used sparingly, say 2 lbs. a day, and increase as the beast comes nearer to be finished. I think it is a great advantage to vary the food; for, like everything else that eats heavily without taking exercise, the appetite becomes to a certain extent satiated; and by mixing corn with the cake, say at the second month, the cattle enjoy their food better, and consequently derive the greater benefit from it. One thing is certain, and every one of us, gentlemen, that are practical farmers know it, that the manure made by cattle when fed with linseed cake and turnips is double the value of that made by cattle when fed on turnips and hay only; and then the immense quantity of hay and turnips you use, or rather waste, to make your cattle look commonly respectable. But, though the manure is more valuable when feeding with linseed-cake, the meat made by mixed feeding of home-grown corn and turnips is of a far better quality; and butchers that are used to meat grown on oilcake and turnips will not give the price or show half the anxiety to get it (no matter how soft and silky they handle) that they will for the hard-fed cattle. There are different ways of giving the cake and corn to cattle: some feeders prefer one way, some another. My plan is to distribute the auxiliary food over the sliced turnips when the cattle are feeding. By that means I can get them to eat more turnips, without having the injurious effect on their bowels that otherwise such a quantity of wet food would have. As I before remarked, better commence with 2 lbs. of cake or corn per day, and increase to 6 lbs. or 7 lbs. The latter is certainly a great quantity, in my opinion, to give of dry food; but much more can be given, if cooked, but this would lead us to a totally different kind of feeding; and so we will not touch on it (I mean forcing cattle for showing, regardless of expense). I like to teach my cattle to eat while they are curried and brushed; for when done carefully, without hurting or irritating them, I think they enjoy their food better, and great time is saved; for two smart men will go over a great many beasts during the feeding hour. Then they shake up the beds, put in fresh straw, dry and clean, darken the house, shut the doors; and, with a little hay in the troughs before the cattle, we shall leave them in the enjoyment of that perfect repose which few, if any, of their masters understand, because they are not, like them, perfectly innocent, and as perfectly devoid of all earthly cares and sorrows. While they are supposed to be sleeping, we will talk about their sale. In this county there are some most respectable men that come to our stalls and buy our fat cattle; and to me there is a great deal of pleasure in such a sale, when my cattle are looking their very best, their skins bright and glossy. They have learned to know me; and I have taken the greatest care in their well-being for a length of time, and it is a pleasant thing to me, when thinking of my last lots, how handsome and well they looked as I handed them over to Jimmy Shaughnessy or to Wm. Nunan, and I do not see my poor favourites when they are parched with thirst and hunger, bruised, and often bleeding, as they are landed on the quay of Liverpool, after a stormy voyage. To avoid such a scene as that is a great inducement to me to sell at home. But there are many of you, gentlemen, that have not as yet circumnavigated the globe, as I have, and consequently you are fonder of travelling; and you will be going with your cattle to Dublin, or perhaps to Liverpool. For your information, therefore, I give the following: Seven fat beasts will fill a truck fairly. The expense to Dublin and the drover's carriage back will be about £5 on the seven. Saleman's commission, 2½ per cent., and a night or two's keep for the cattle in Dublin about 12s., in all 26s. a-head—about 6s. each will take them on to Liverpool. This is for cattle whose value is about £20 each. Gentlemen, there is one other remark I will make on stall-feeding (much more could be written on the subject, but fortunately for you I have not done so), and that is the selection of the man you put in charge of your cattle. Get a kindly disposed, good-natured fellow, the father of a family if possible; for hard, indeed, must the nature of that man be who is not softened by the associations of his humble home, by witnessing and sharing in the gambols of his innocent, happy, little children. Get a man who takes an interest in the cattle, and who will talk to you of the improvement in this beast or in that. Encourage him to do so, and if you find him worthy of it, encourage him



also in a more substantial manner when you receive the money that his carefulness and attention have so materially contributed to secure for you. And, above all, gentlemen, take an interest—a very warm interest—in the well-being of your cattle. You all know the old saying, "It's the master's eye that fattens the beast." Believe me, it is a very true saying; and if some of you (as I do) like your pipe or your weed after dinner, instead of returning to your smoking-room, light your lantern and go out to your cattle: believe me, there is no smoking-room half so pleasant as a well-kept feeding-house of a cold evening. And while you enjoy your weed, you can moralise, if you wish, on the things of this life. If, like me, you, or any of you, gentlemen, were parched by the fiery heat of a vertical sun in the torrid zone; or if you almost perished with cold—ay, and were frost-bitten, too—amid the stormy seas and the fearfully beautiful icebergs off Cape Horn; or if

you slept for many a night on the bare earth of the gold-fields of Australia, with nothing above your head but the bright blue sky of that far-famed land—if you, gentlemen, or any of you, endured all this and far more, as I have, you would puff your weed most calmly over the fattening favourites; and you would come to the conclusion that I have come to—"that there is no land on earth like our own dear Ireland;" that there is more social pleasure and a greater field for enterprise, which, if persevered in with energy and "with all thy might," will surely bring more success and happiness, more domestic peace and quiet enjoyment, than the realization of the warmest dream that ever induced a hopeful and sanguine youth, as I was, to leave a happy home and a gold-field in the county of Limerick to seek for it amid the barren quartz hills and the fiery plains of the colony of Victoria.

## ROYAL AGRICULTURAL SOCIETY OF IRELAND.

The great annual show of the Royal Agricultural Society of Ireland commenced on August 28th in the City of London-derry, and, though small in comparison with some of the previous shows of the Society, it was considered by many, with regard to quality of stock, to have been one of the most successful shows which the Society has held. The show was held in the Victoria Market, which was admirably adapted for the purpose. The arrangements were efficiently carried out, and reflected the highest credit on the local committee and those acting under them, and the exhibitors and visitors in general were greatly inconvenienced by being able to go, without much trouble, direct to any part of the show which they wished to see.

The entries of cows in calf or in milk, though not very numerous, were strictly good. The show of Herefords, for which the prizes are always substantial, mustered in great force. The Ayrshire class of cattle, which in the North of Ireland are becoming decided favourites, was well represented. There are many who consider that Ayrshire breeding is rather unprofitable, but the experience of those breeders in the North of Ireland goes to show quite a different result. Devon cattle, which, for excellence of shape, colour, and handling properties, always command the admiration of the dairyman, were not so very numerous as may be desired, but the quality of the animals shown was most unblemished. In Kerry the case was different, as the section was not only well filled up, but the choicest animals in the country were placed side by side. The sheep show was a success as regards quality, but not extensive as regards entries. The prize rams of the Royal English shows were very kindly sent forward by their respected owners.

The animals shown by several of the tenant-farmers possessed more than average merit, and denoted in the most conclusive manner the fact of care and attention of no mean order being exercised by the owners thereof. The swine reached twenty-four entries. The quality was faultless in the vast majority of instances.

At the banquet, which was presided over by the Earl of Erne, and which took place in the New Corn Market of Derry, the Lord Lieutenant of Ireland said: My noble friend the President has been pleased to allude in the most kind and friendly terms to the manner in which I have performed my duties as an Irish landlord. Such approval, coming as it does from my noble friend himself, one of the best and most intelligent of Irish landlords—and let me say, gentlemen, that these good qualities usually go together—such approval coming from my noble friend gives me the highest gratification; but I may return and remind my noble friend that when I first, at an early age, undertook the duties of landlord in Ireland, I found my noble friend established already, both in this locality and elsewhere, as one of the best landlords in Ireland; and it has always been my endeavour, as far as I was able, to follow the example set by him in a course in which he was so sagacious a guide. My lords and gentlemen, I confess there is no locality in which I have greater pleasure in meeting the Agricultural Society of Ireland than the one in which we are now. I think this district and this province suggests an instructive

lesson, and an example to all who study the great problem of Irish prosperity, of Irish industry, and of Irish difficulties. It is true that we do not find those genial skies or that overflowing fertility which some countries are blessed with; but we do find a population, large in proportion to most agricultural countries, living in peace and harmony, energetically carrying out their industrial occupations, while a cordial sympathy exists and is cherished between both employers and employed, between the landlords and the tenants of the soil. It is not my place to inquire from whence this happy combination arose, but it is sufficient for us to express our satisfaction at the undoubted evidence which we have of them, *satis actio* not lessened by the hope that there is nothing essential in them that might not be applicable to the rest of Ireland. My lords and gentlemen, with respect to the show of to-day, I think we have every reason to be satisfied with it. There have been social causes in Ireland for the last three or four years, which it might be feared would react unfavourably upon the agricultural as they certainly have done on the commercial and moneyed interests in the country. These disturbances fortunately in their outward elements have disappeared, but it was not impossible to suppose that the wounds which they might have inflicted on the industrial occupiers of life might still be scarcely healed or removed, and, therefore, I think that we may congratulate ourselves that the show of to-day showed no falling off or deficiency in the agriculture of the country, but on the contrary showed evidence of a sound and confirmed condition of prosperity. After alluding to the cattle exhibited he said: But beyond the appearance that the show presented to-day, I think it is desirable we should go somewhat further into the details of what the agricultural position of the country in the present year may be. We have had a season of entirely exceptional drought, and yet I am happy to say that reliable accounts from all parts of the country give every confidence that the promised harvest will be a favourable one. With the exception of turnips, which, both in Ireland and elsewhere, have unavoidably been in many places deficient, all the other crops look well. The corn crop is above the average, certainly as to quantity. The potatoes and meadow crop are good, and the flax crop certainly not below the average. If we go somewhat deeper into details we shall find the returns which have been just issued, that the present year shows an increase of 79,000 acres of cereal crop over last year, also shows an increase of 33,000 acres of potatoes and 33,000 acres of meadow land. Looking at the meadow land of last year, from which it appeared as if a large quantity of land was going out of tillage into pasture, it is satisfactory to find from the returns of the present year that nearly 150,000 acres are returning from pasture presumably into rotation of crops and consequently into the right direction. The returns of the stock show some very small decrease in horses; a decrease of about 3,000 in sheep, and a much larger one in cattle and pigs; the decrease in cattle being 87,000, and in pigs 572,000. With respect to the cattle, I confess I am not surprised at it. On the occasion I had the honour of meeting the Agricultural Society last year, I took the liberty of calling th

attention of the members of the society to the great increase of sheep and cattle, while there was actually a decrease in the ordinary means of providing winter food for them. That the experience of the past winters have led to some decrease in cattle I am not surprised. As to the decrease in pigs, unless it be from something of the same cause, or a disease which, I understand, has been very prevalent in swine, I confess I am not able to assign any reason for it, and I must leave the solution to the more experienced members of the society. In the article of flax, we find the whole number of acres in Ireland in the present year is 206,000; but, as the returns of flax have been already issued to the public, I will not detain you further upon them than to say there is a decrease in the present year of 48,000 acres, of which 42,000 are in Ulster. I confess I am not disposed to look upon this decrease as a proof of weakness or deficiency, but rather as a return to a healthy condition; and I think that when we find the present year shows a large increase over every year antecedent to the great outbreak of flax cultivation in 1863, that opinion is well confirmed. I need not remind you that in this district, and in this province, the population possesses considerable skill in the cultivation and preparation of flax. I should be the last person who would venture to detract from their abilities in that respect, but I may observe that I have often told my friends in the north that, notwithstanding the skill they display in this respect, there is still a large increase of profit that might be derived from a still higher and more scientific culture and preparation. I think there is also much to be desired in returning some portion of the crop back to the soil, and for which some mode of saving the seed, if not for sowing, at least for feeding purposes, would be very desirable. I may also allude to the olfactory nerves of some of our visitors, to testify of the fertilizing powers of flax water. The number of persons who emigrated during the year ending June, 1868, was 69,000, or 11,000 less than in the preceding year, and 33,000 less than in 1866. We also find that the present year shows a decrease upon any preceding year during the last seven years, with the exception of 1863, which was somewhat less than the present year. Connected with the subject of emigration is one bearing closely upon it, and in which I feel consequently a lively interest: I mean the improvement of the dwellings of labouring classes. With this view, as has been stated by my noble friend, I have begged to be permitted to give a prize for designs for a labourer's cottage, to be built at a certain price. The price fixed is low, being £70 for a single cottage, £65 for one in a row, because in the lowness of the price and consequently the feasibility of indefinitely extending them lies the whole point of the question. Nothing is easier than to build or maintain cottages regardless of cost; and they form, no doubt, very pretty adjuncts to the residence of a proprietor; but what is wanted are improved dwellings for labourers over the whole country, and you can only effect this by designs to be erected at a reasonable price, and to be occupied by labourers having reasonable wages. The subject of emigration from Ireland is one which has received serious consideration both in Great Britain and here, and various causes have been assigned for it. I am inclined to believe that the Irish peasant is undoubtedly better off now than he was in former years. We cannot assign increased poverty as the cause of increased emigration, but I believe that the spread of education and intelligence, and the better communication effected by railways with the outer world, has worked in the mind of the Irish peasant the feeling that the condition in which his fathers were content to live is not one which he will be contented with in the present day. Well, gentlemen, the best way to counteract this evil is improved houses and better wages—they both go together—for the labouring classes; and it is for this reason that I rejoice to see increased wages in different parts of the country. There may be a drawback for a time on the landlord, and it may press for a period hardly on the farmer; but, rely upon it, they will certainly bear their fruits in the long run—not only in improved comfort and content of the labourer, but in improved labour to the farmer; for I think the most of us know by experience that there is nothing so expensive in the long run as cheap labour. No one is more aware than I am of the difficulty of erecting improved labourers' cottages on a large scale. I am free to confess that, as an Irish proprietor, I am ashamed of the average dwellings of the agricultural labourers on my own estate, and yet

I am unable to see my way to any change for the whole number; but the subject is one which, if properly brought before the public, is capable of great expansion, and I think, looking to the improved agriculture springing up all round us, it is our duty both for the common interest of the country, and for the interests of humanity, to do all in our power by raising the Irish labourer into a position of content, of comfort, and of self-respect in his own country—to apply a styptic to the hemorrhage of emigration. His Excellency then briefly alluded to the loss the county sustained in the deaths of two good landlords, the Marquis of Downshire and Lord Farnham, and concluded a speech, in which he was greatly applauded, as follows: We see under the blessings of Providence the prospects of a full and sufficient harvest. We see the seditious disturbances and disloyal feelings of the Fenian conspiracy falling away, while a growing spirit of respect for the law and an inclination to habits of peace and order, to the quiet and industrial occupations of ordinary life are taking their place. Looking, then, to the difficulties of the past, now happily surmounted, and forward to more cheering prospects of the future, we have no cause for desponding, but, on the contrary, we have every just and reasonable hope that the day may come when, under the Divine Providence, the storms and clouds which lower now around the destinies of Ireland may be dispelled, and when the generous and cordial nature of its people, now so much over-shadowed by mutual distrust and disquiet, may show itself in increased sympathy and union between all classes, and when all those benefits may, and most surely will attend her, that increased capital, internal peace, and quiet can alone confer upon a great and united, because a prosperous and contented, people.

**JUDGES.**—The following gentlemen officiated as judges in the general classes:—**Short horns:** Messrs. R. Woods, Thomas Marins, and Hunt. **Herefords and Devons:** Messrs. Thomas Dickham, Garne, and Woods. **Ayrshires:** Messrs. Drew, Mitchell, and Rogers. **Other breeds:** Messrs. John Richardson, Rea, and W. Fetherstonhaugh. **Horses:** Messrs. Thomas Hunt, George Rochford Boyd, and Major Borrowes. **Leicesters:** Messrs. Woods, Stamper, and Warburton. **Border Leicester-shire and other long-woolled:** Messrs. Mitchell, Garne, and Drew. **Shropshires:** Messrs. J. Moore and Woods. **Other sheep:** Major McClintonck and N. Richardson.

The following as society's stewards:—**Short horns and other breeds:** Messrs. J. M. Boyse and Charles Colthurst Veasy. **Horses:** Messrs. J. M. Boyse and H. J. MacFarlane. **Sheep:** Messrs. D. A. Milward and Richard Chalonier. **Swine and poultry:** Messrs. D. A. Milward and Sir Percy Nugent, Bart. **Flax, butter, and implements:** Mr. Charles Uniacke Townsend.

## PRIZES.

### SHORTHORNED.

The Purdon challenge cup, value 60 guineas, for the best shorthorned bull, calved on or after 1st January, 1863.—Edward J. Smith, county Limerick.

The Purdon challenge cup, value 60 guineas, for the two best shorthorned heifers, calved in 1867.—Lieutenant-Colonel Fisher, Castlegrogan.

Best bull calved on or after the 1st of January, 1863, and previous to the 1st of January, 1866.—Edward J. Smith, Islanmore, Croome, county Limerick; second, Major James Hamilton, Brownhall, Ballintra; third, Joseph Alexander, Imlick, Carrigans, Londonderry.

Best bull calved in the year 1866.—Richard Chaloner, Kingfort, Keils, county Meath; second, Samuel McCorkell, Bart, Londonderry; third, William Archdall, Riverdale, Ballycassidy, Omagh.

Best bull calved in 1867.—Joseph Meadows, Thornville, Wexford; second, J. W. Ellison Macartney, The Palace, Clogher, county Tyrone.

Best bull-calf calved in 1868.—N. M. Archdall, Crocknashieve, Ballinamallard; second, Henry M. Richardson, Rossfad, Ballycassidy; third, N. M. Archdall, Crocknashieve, Ballinamallard.

Best cow, in calf or in milk, calved previous to 1st January, 1865.—James G. Grove, Castle Grove, Letterkenny; second, same; third, J. W. Ellison Macartney, The Palace, Clogher, Tyrone.

Best heifer, in calf or in milk, calved in 1865.—John McGildowney, Clare Park, Ballyneale, county Antrim.

Best heifer in milk or in cask, calved in 1866.—James G. Grove, Castlegrove, Letterkenny; second, Samuel Smyth, Cross, Londonderry.

Best heifer calved in 1867.—Lieutenant-Colonel Fisher, Castlegrogan, Rathdowney; second, same; third, Earl of Caledon.

Best heifer-calf calved in 1868.—First and second prizes, Robert M'Crea.

#### HEREFORDS.

Best Hereford bull calved on or after 1st January, 1863.—Samuel Gilliland.

Best Hereford cow, in-calf or in-milk, calved previous to 1st January, 1865.—Samuel Gilliland.

Best Hereford heifer, in-calf or in-milk, calved in 1865.—Samuel Gilliland.

Best Hereford heifer calved in 1866 or 1867.—Samuel Gilliland.

#### AYRSHIRES.

Best bull calved on or after 1st January, 1863, and previous to 1st January, 1866.—George Young; second, Wm. Donnell.

Best bull calved on or after 1st January, 1866.—John Stewart; second, Stevenson Hall; third, David Patton.

Best cow, in-calf or milk, calved previous to 1st January, 1865.—John Stewart; second, Gavin Craig; third, John Stewart.

Best heifer, in-calf or in-milk, calved in 1865.—Charles A. Smyth; second, John Stewart, Burnside Cottage; third, David Patton.

Best heifer, calved in 1866 or 1867.—David Patton, Trynanny, Glasslough; second John Stewart, Burnside; third, same.

#### OTHER BREEDS.

Best Polled Angus or Galloway bull, calved on or after 1st January, 1863.—Major Tyrrell.

Best Devon bull, calved on or after 1st January, 1863.—Charles Boyle.

Best Kerry bull, calved on or after 1st January, 1863.—Capt. Daniel Bayley, Friarstown House, Tallaght, county Dublin.

Best Polled Angus or Galloway heifer, calved in 1866 or 1867.—Major Tyrrell.

Best Devon cow, in-calf or in-milk, calved previous to 1st January, 1865.—Charles Boyle.

Best Devon heifer, calved in 1866 or 1867.—Charles Boyle.

Best Kerry cow, in-calf or in-milk, calved previous to 1st January, 1865.—Capt. Daniel Bayley.

Best Kerry heifer, calved in 1866 or 1867.—Capt. Daniel Bayley, prize and two commendations.

OPEN TO COMPETITION TO TENANT-FARMERS WHOSE POOR-LAW VALUATION IS UNDER £150 PER ANNUM.

Best cow, in-calf or milk.—Samuel M'Corkell; second, Henry Haslett.

Best heifer, in-calf or milk, calved in 1865.—David Patton; second, Patrick Quin.

Best heifer, calved in 1866 or 1867.—Samuel M'Corkell; second, Henry Haslett.

#### HORSES.

The Croker Challenge Cup, value 50 sovs., with 20 sovs. added, for the best weight-carrying thorough-bred stallion.—First prize, Henry Gillespie; second, R. S. Moore.

Best gelding or filly suited for hunting purposes, and up to at least thirteen stone, foaled on or after 1st January, 1864, fifteen sovs.—N. M. Archdall, Crocknacrieve, Ballinamallard; second, Henry Danton, Raspberry Hill, Donemana, Strabane.

Best gelding or filly suited for coaching purposes, foaled on or after 1st January, 1864, ten sovs.—James Cunningham, Londonderry; second, James Browne, Ballyarnett, Londonderry.

Best brood mare, not thorough-bred, ten sovs.—Francis Cunningham, Londonderry; second, Francis Ellis, Fecarry House, Omagh.

Best pony, three sovs.—Sir Frederick Heygate, Bart., M.P., Ballarena, Magilligan, Derry; second, Samuel Gilliland, Brook Hall, Derry.

#### AGRICULTURAL HORSES.

Best stallion, of any breed, for agricultural purposes, foaled on or after 1st January, 1861, and previous to 1st January, 1865, twenty-five sovs.—Mrs. Mary Mooney, Crumlin, county Dublin; second, William Meikle, Bainsford, Falkirk.

Best stallion for agricultural purposes, foaled on or after 1st

January, 1865, fifteen sovs.—No first prize; second, R. L. Moore, Molenan, Londonderry.

To the breeder of the best stallion in the above sections, the medal.—Mrs. Mary Mooney, Crumlin, county Dublin.

Best draught gelding or filly, foaled on or after 1st January, 1865; ten sovs.—N. M. Archdall, Crocknacrieve; second, Major Tyrrell, Foyle Park, Eglinton.

Best draught mare, in foal or with a foal at her foot, or having reared a foal in the year 1868, fifteen sovs.—Mrs. Mary Mooney, Crumlin, county Dublin; second, M. Archdall, M.P., Castle Archdall.

#### SHEEP: LEICESTERS.

Best shearing ram.—Wm. Owen; second, Thomas Marris; third, Wm. Owen.

Best ram of any other age.—Thomas Marris; second, Wm. Owen; third, same.

Best pen of five shearing ewes.—Seymour Mowbray; second, Thomas Marris.

#### BORDER LEICESTERS.

Best shearing ram.—Earl Fitzwilliam; second, Robert G. Cosby; third, Smith Barry.

Best ram of any other age.—Earl Fitzwilliam; second, Joseph Alexander; third, Captain L. M. Buchanan.

Best pen of five shearing ewes.—Earl Fitzwilliam; second, Captain L. M. Buchanan; third, Rev. John B. Frith.

Best pen of five ewe lambs.—Captain L. M. Buchanan.

OTHER LONG-WOOLLED SHEEP, not qualified to compete in the above.

Best shearing ram.—Thomas Roberts; second, Captain L. M. Buchanan.

Best ram of any other age.—Thomas Roberts; second, N. M. Archdall; third, Thomas Butler, Priesttown House.

Best pen of five shearing ewes.—Rev. John B. Frith, Enniskillen; second, Thomas Butler; third, same.

Best pen of five ewe lambs.—Thomas Cather.

#### SHROPSHIRE DOWNS.

Best shearing ram.—Smith Barry; second, same; third, same.

Best pen of any other age.—Smith Barry; second, same; third, Thomas Marris.

Best pen of five shearing ewes.—Jonathan Richardson; second, same.

Best pen of five ewe lambs.—Thomas Cather.

#### OTHER SHORTHORNED SHEEP.

Best shearing ram.—Thos. Marris; second, Thos. Buller.

Best ram of any other age.—Thomas Marris; second, same.

Best pen of five shearing ewes.—Thomas Butler; second, same.

Best pen of five ewe lambs.—Thomas Butler.

Best Cheviot shearing ram.—Thomas Butler; second, same.

Best black-faced shearing ram.—Thomas Butler; second, George Dalziel.

#### SWINE: COLOURED BREED.

Best boar under 18 months old.—Thomas M'Elroy.

Best boar over 18 months and under 36 months old.—Thomas M'Elroy, Rosstowney, Waterside, Londonderry; second, Sir Frederick W. Heygate, Bart., M.P., Bellarena, Magilligan, Derry.

Best breeding sow under 18 months old.—Thomas M'Elroy, Rosstowney, Waterside, Londonderry; second, Gavin Craig, Aughtmoyle, Magilligan, Londonderry.

Best breeding sow over 18 months old.—Gavin Craig, Aughtmoyle, Magilligan, Londonderry; second, James Ganby, Hillsborough, Lucan.

Best lot of three breeding pigs of the same litter, above 4 and not exceeding 8 months old.—Thomas M'Elroy, Rosstowney, Waterside, Londonderry.

#### WHITE BREED.

Best boar under 18 months old.—John Black, Derrydoragh, Coleraine; second, J. L. Naper, Loughcrew, Oldcastle.

Best boar over 18 months and under 36 months old.—J. L. Naper, Loughcrew, Oldcastle.

Best boar in the above sections.—J. L. Naper, Loughcrew, Oldcastle.

Best sow under 18 months old.—J. L. Naper; second, same.

OPEN TO TENANT-FARMERS WHOSE POOR-LAW VALUATION IS UNDER £150 PER ANNUM.

Best breeding sow over six and under 18 months old.—David Glenn.

## ROYAL NORTH LANCASHIRE AGRICULTURAL SOCIETY.

This society held its annual meeting and exhibition at Ulverston on Tuesday and Wednesday, Aug. 25 and 26, and, notwithstanding the unpropitious weather of Wednesday, which was the show day, it was a decided success. The number of entries far exceeded that of any other previous show of this society, both for animals and implements, and being well displayed, the whole effect, so long as it kept fair, was quite picturesque when seen at a little distance.

The trial of implements took place on Tuesday—a day well suited for the occasion, as a pleasant breeze was blowing all the time. Upon the whole there was an excellent display of implements on the trial field, showing the importance which machinery has attained, looked at both from an agricultural and a mechanical point of view. There were tried 22 reaping-machines, 12 mowing-machines, 18 hay-rakers, and 12 hay-making-machines.

The show of live stock, implements, &c., opened on Wednesday morning, in Lightbourne Park. There were nearly 2,000 entries, of which the implements absorbed 850. There were a few good animals amongst the horses, but in this department the show was in point of quality much inferior to the Preston meeting. The hunters were a good class, but the show did not appear to have attracted many first-rate animals. Amongst the cattle, the classes for bulls two years old and upwards, and cows or heifers above three years old, were equal to anything that the society had exhibited in former years. There were 22 entries in the class for cows or heifers three years old and upwards, and the judges were so long in coming to a decision upon the relative merits of four of the competitors that it was clear considerable difference of opinion existed. Eventually Lady Pigot carried off both the first and the second prizes, after a very close contest with Mr. R. Eastwood, Clitheroe, and Mr. A. Dugdale, Burnley.

The Judges were: For Implements, Messrs. Boulton, Forrester, Hartley, and Whalley; for Cattle, Messrs. T. C. Booth, Grey, and Torr; for Horses, Messrs. Hutchinson, Gibson, and Wilson; for Sheep, Pigs, Roots, and Seeds, Messrs. Begbie, Nicholson, and Riley.

Following is the list of awards:

## IMPLEMENTS.

Mowing machine.—Silver medal and £5, A. C. Bamlett, Thirsk, Yorkshire; second, Picklesy, Sims, and Co. (limited), Bedford Foundry, Leigh, Lancashire.

Reaping machine.—Silver medal and £5, A. C. Bamlett, Thirsk, Yorkshire; second, William Mattinson, Leeming Bar Foundry, Yorkshire.

Winnowing machine.—Silver medal, Thomas Corbett, Shrewsbury.

Swing plough.—Silver medal, Christopher Pennington, Gleaston, Ulverston.

Wheel plough.—Silver medal, Thomas Corbett, Shrewsbury.

Turnip drill on ridge.—Silver medal, James Deason, Ulverston.

Grinding mill and crusher.—Silver medal, Picklesy, Sims, and Co.

Turnip pulper.—Silver medal, James Deason, Kirby Ireleth.

Chaff-cutter.—Silver medal, Richmond and Chandler.

Turnip-cutter.—Silver medal, Picklesy, Sims, and Co.

Haymaking machine.—Silver medal, W. Nicholson, Newark.

Hayrake.—Silver medal, Picklesy, Sims, and Co.

One-horse cart.—Silver medal, Richmond and Chandler.

Churn.—Silver medal, Robert Tinkler, 17, King-street, Penrith.

Wringing and mangling machine.—Silver medal, John Whittle, Whitehaven.

Collection of agricultural implements.—£5, Richmond and Chandler.

Assortment of saddlery and harness.—Silver medal, John Boulton, Ulverston.

## CATTLE—SHORTHORNS.

Bull, two years old or upwards.—Silver cup or £10, Jonathan Peel, Clithero; second, Lady Pigot, Newmarket.

Bull, above one and under two years old.—Silver cup or £5, Lady Pigot, Newmarket; second, R. W. Ashburner, Ulverston.

Bull calf, under twelve months old.—Society's silver cup or £3, Adam Dugdale, Burnley; second, Richard Eastwood, Clitheroe.

Cow or heifer, above three years old, and in-calf or in-milk.—Society's silver cup or £5, Lady Pigot; second, Lady Pigot.

Heifer, above two and not exceeding three years old, and in-calf or in-milk.—Society's cup or £5, Adam Dugdale, Burnley; second, Thomas Atherton, Liverpool.

Heifer, not exceeding two years old.—Society's silver medal or £3, Leonard Charles Wood, Kirkham; second, R. W. Ashburner, Ulverston.

Heifer calf.—Society's silver medal or £3, William Ashburner; second, M. J. Crank, Ulverston.

## CATTLE OF ANY BREED.

Bull, two years old, and under three.—Silver cup or £10, Robert Winder, Pilling; second, Samuel Redmayne, Preston.

Bull, above one and under two years old.—Silver cup or £10, R. W. Ashburner; second, James Crosssell, near Ulverston.

Bull calf, under twelve months old.—£5, John Woodhouse, Lancaster; second, R. W. Ashburner.

Cow in calf or milk, having had a calf, and above three years old.—£5, George Hunt, Preston; second, George Hunt, Preston.

Heifer, not exceeding three years old, and in calf or milk.—£5, Thomas Atherton, Liverpool; second, William Boulton, Dalton-in-Furness.

Heifer, not exceeding two years old.—£4 Leonard Charles Wood, Kirkham; second, R. W. Ashburner.

Heifer calf.—£3, William Ashburner; second, M. J. Cranke, Ulverston.

Best bull, cow, and calf; the latter to be the progeny of the two former; all *bond fide* the property of the exhibitor, according to the rules and regulations of the Society (new prize).—£10 or silver cup, W. and T. Robinson, Ulverston.

Extra Stock.—James Crosssell, near Ulverston.

## HORSES.

Thoroughbred stallion.—£50, J. Laycock, Silsden, near Leeds.

Roadster stallion.—£20, Thomas Shaw, Tarleton.

Dray or agricultural stallion.—£20, John Edmondson, Burnley.

Thoroughbred stallion.—Cup, value 20 guineas, James Moffatt, Carlisle.

Brood mare for agricultural purposes, being in foal or having produced a foal in 1868.—Silver cup or £5, Richard Eastwood, Clitheroe; second, His Grace the Duke of Devonshire, Holker Hall.

Mare for breeding hunters, being in foal or having produced a foal in 1868.—Silver cup or £5, E. A. Aglionby, Hawkshead; second, D. H. Fenton, Kendal.

Brood mare for harness purposes, being in foal or having produced a foal in 1868.—Silver cup or £5, Mrs. Bell, Barrow-in-Furness; second, Francis Long, Wetherby.

Pair of draught or agricultural horses above three years old.—Silver medal or £5, Thomas Statter, jun., Manchester; second, John Hunt, Barrow-in-Furness.

Dray or agricultural mare or gelding, four years old or upwards.—Silver medal or £2, Thomas Whitaker, Preston.

Three-year-old gelding or filly for agricultural purposes.—Silver medal or £3, Richard Eastwood, Clitheroe; second, William Slater, Dalton-in-Furness.

Three-year-old gelding or filly for hunting purposes.—Silver medal or £3, Robert Ashburner; second, John Martin, Ulverston.

Three-year-old gelding or filly for harness purposes.—Silver medal or £3, John Denny, Dalton-in-Furness; second, Henry Parker, Kirkby Ireleth.

Two-year-old gelding or filly for agricultural purposes.—Silver medal or £3, William Slater, Dalton-in-Furness; second, John Jackson, Ulverston.

Two-year-old gelding or filly for hunting purposes.—Silver medal or £2, John R. Patterson, Ulverston; second, Jonathan Kellett, Ulverston.

Two-year-old gelding or filly for harness.—Silver medal or £2, Henry Parker, Kirkby Ireleth; second, William Rigg, Ulverston.

Yearling colt or filly for agricultural purposes.—Silver medal or £2, John Ormandy, Ulverston.

Yearling colt or filly for hunting purposes.—Silver medal or £2, E. A. Aglionby, Hawkshead; second, Jonathan Kellett, Ulverston.

Yearling colt or filly for harness purposes.—Silver medal or £2, Francis Long, Wetherby; second, John Hodgson, Ulverston.

Colt or filly foal for agricultural purposes.—Silver medal or £2, William Slater, Dalton-in-Furness.

Colt or filly foal for hunting purposes.—Silver medal or £2, D. H. Fenton, Kendal; second, E. A. Aglionby, Hawkshead.

Colt or filly foal for harness purposes.—Silver medal or £2, Francis Long, Wetherby; second, William Butler, Dalton-in-Furness.

Hunter, four years old and upwards, and to leap, at the discretion of the Judges, over hurdles 4 feet 6 inches high.—Silver cup or £10, Eva Fyler, Hawkshead; second, James Moffatt, Carlisle; third, Thomas Weston, Grange.

Roadster mare or gelding, four years old and upwards.—£3, Mary Wilkin, Holborn Hill, Cumberland; second, John Clegg, Urawick.

Cob above 13½ and not exceeding 15 hands high.—£3, Joseph Fearon, Whitehaven; second, John Mason, Broughton-in-Furness.

Cob above 12 and not exceeding 13½ hands high.—£2, T. H. Miller, Preston; second, Mark Whimsey, Ulverston.

Pony under 12 hands high.—£1, Alexander Brogden, Ulverston; second, James Park, Ulverston.

Extra stock.—Richard Eastwood, Whitewell.

#### SHEEP.

Shearling ram of the Leicester breed.—Silver medal or £3, and second, T. H. Hutchinson, Catterick.

Ram of the Leicester breed of any other age than shearling.—Second, T. H. Hutchinson, Catterick.

White-faced sheep, long-woolled shearling ram, not being of the Leicester breed.—Silver medal or £3, and second, Wm. Norman, Aspatria.

Shearling ram of the Shropshire Down breed.—Silver medal or £2, and second, William J. Garnett, Lancaster.

Ram of the Shropshire Down breed, of any other age than shearling.—Silver medal or £2, William J. Garnett, Lancaster.

Shearling lamb of the Lonk breed.—Silver medal or £3, Jonathan Peel, Clitheroe.

Ram of the Lonk breed, and other age than shearling.—Silver medal or £2, Jonathan Peel, Clitheroe.

Ram of any other breed, adapted to a mountain district.—Silver medal or £2, and second, George Browne, Windermere.

Pen of three Leicester ewes, not to exceed in age four shears, each having reared a lamb in 1868.—Silver medal or £2, T. H. Hutchinson, Catterick; second, Thomas Wilkinson, Garstang.

Pen of three shearling Leicester ewes.—Silver medal or £2, and second, T. H. Hutchinson.

Pen of three white-faced long-woolled ewes, not being of the Leicester breed, not to exceed in age four years, each having reared a lamb in 1868.—Silver medal or £2, and second, William Norman, Aspatria.

Pen of three shearling white-faced long-woolled ewes, not being of the Leicester breed.—Silver medal or £2, William Norman; second, Robert Coward, Ulverston.

Pen of three Shropshire Down ewes, not to exceed in age four shears, each having reared a lamb in 1868.—Silver medal or £2, Wm. J. Garnett, Lancaster; second, Roger Bowling, Garstang.

Pen of three shearling Shropshire Down ewes.—Silver medal or £2, Wm. J. Garnett, Lancaster; second, Wm. J. Garnett, Lancaster.

Pen of three Lonk ewes, not to exceed in age four shears, each having reared a lamb in 1868.—Silver medal or £2, Jonathan Peel, Clitheroe; second, Jonathan Peel, Clitheroe.

Pens of three ewes of any other breed, not to exceed in age four shears, each having reared a lamb in 1868, and best adapted to a mountain district.—Silver medal or £2, George Browne, Windermere; second, George Browne.

Extra Stock.—His Grace the Duke of Devonshire, Grange, and T. H. Miller, Kirkham.

#### PIGS.

Boar of a large breed, any age.—Silver medal or £3, Peter Eden, Manchester; second, Jas. Kendall, Dalton-in-Furness.

Boar of the small breed, any age.—Silver medal or £2, Peter Eden, Manchester; second, Rd. Batty, Ulverston.

Breeding sow of the large breed, in-pig or milk.—Silver medal or £2, and second, Peter Eden, Manchester.

Breeding sow of the small breed, in-pig or milk.—Silver medal or £2, Peter Eden, Manchester; second, Benjamin Bee, Preston.

Breeding sow of the Berkshire breed.—£2, George Hunt, Preston; second, W. and T. Robinson, Ulverston.

## SCARBRO', HACKNESS, AND NORTH AND EAST RIDINGS AGRICULTURAL SOCIETY.

On Wednesday, Aug. 26, this influential local society held its annual show at Scarbro' under the most favourable circumstances. The display of stock was extensive and excellent in quality, the attendance of company numerous, and the weather was fine, with rather a brisk wind from the north-west.

The site was in every respect the best that the society has ever had.

An interesting feature of the exhibition was the show of cattle, which although not large was yet nevertheless of a most superior description. The bulls of any age were prime, the class comprising eight as fine animals as ever were seen in a show-yard. The first prize was carried off by the Earl of Feversham with Orestes, a magnificent bull between four and five years old. The cow and heifer classes call for special remarks. There were several good beasts amongst the lot, but the entries, generally speaking, were small, and the competition, therefore, was not of that spirited character which was wished.

The sheep formed a section of the show which attracted considerable attention. Some of the classes filled well, whilst others were short, and in one instance there was no entry at all—a circumstance not satisfactory. Upon the whole, however, there was a display of sheep, as regarded quality, well deserving of close inspection.

The display of pigs was highly satisfactory, and it was acknowledged on all hands that the array of horses on this occasion was never surpassed, if equalled, at the previous shows of the society.

The following gentlemen officiated as judges:—

FOR CATTLE.—Mr. J. R. Singleton, Givendale; Mr. John Kirby, Skirpenpeck; and Mr. John Boast, North Dalton.

FOR HUNTING AND NAG HORSES.—Mr. Wm. Atkinson, Barrowby Hall, Woodlesford; and Mr. John Bennett, Bowthorpe Grange, Ragby.

FOR COACHING AND AGRICULTURAL HORSES.—Mr. John

Kirby, Barton Field, Stamford Bridge; and Mr. Richard Hodgson, Langton Grange, Northallerton.

The following was their award of the prizes:—

#### CATTLE—SHORTHORNS.

Bull of any age.—First prize, £10, Right Hon. Earl Feversham, Duncombe Park; second of £5, W. Linton Sheriff Hutton.

Bull above one and under two years old.—First prize, £5, W. Linton; second of £2 10s., J. S. Jordan, Elmswall.

Bull calf under twelve months old.—First prize £2, T. Frank, Fylingdales; second of £1, J. Cattley, Stearsby.

Cow or heifer above three years old, in calf or in milk.—First prize, £5, the executors of the late F. Jordan, Eastburn; second of £2 10s., R. Rowley, Ebberston.

Heifer above two years old, in calf or milk.—Prize, £4, W. Linton, Sheriff Hutton.

#### CATTLE OF ANY BREED.

Cow or heifer above three years old, in calf or milk.—First prize, £3, Sir J. V. B. Johnstone, Bart., M.P., Hackness Hall; second of £1, T. Frank, Fylingdales.

Two dairy cows.—First prize, £3, T. Walker, Seamer; second of £1, J. Stephenson, Seamer Lane, Scarborough.

Heifer calf.—Prize, £1, W. Thirkell, Spa Hotel, Scarborough.

Fat ox, cow, or heifer.—Prize, £3, G. and C. Lancaster, Morton Grange, Northallerton.

#### COTTAGER AND MILK-SELLER'S PRIZE.

Milk cow.—First prize, £2, H. Wilkinson, Seamer; second of £1, R. Wilson, Wykeham.

#### SHEEP.

Leicesters, two-shear or aged ram.—First prize, £5, G. H. Sanday, Holme Pierrepont, Notta; second of £2, J. Borton, Barton House, Malton.

Shearing ram.—First prize, £7, J. Borton; second of £3, J. Borton.

Pen of three shearing rams.—First prize, £5, T. Stamper, Highfield House, Oswaldkirk; second of £2, J. W. Sharp, Ulrome Hall, Bridlington.

Pen of five shearing gimmers.—First prize, £3, J. Rushworth, Lotherton, South Milford; second of £1 10s., E. Riley, Kipling Cotes Farm, Beverley. An extra prize of £3 was also awarded to G. Wright, Broughton, Malton.

Pen of five Leicester ewes.—First prize, £2, R. Rowley, Ebberston; second of £1, T. Abraham, East Heslerton.

Pen of ten Leicester gimmer lambs.—First prize, £3, G. Raper, Hunmanby Field, Scarborough; second of £1 10s., T. Dayrell, West Ayton, Sherburn.

Ram, adapted to a moor or mountain district.—First prize, £3, W. Raddale, Danby Lodge, Danby End; second of £1, W. Raddale.

Pen of three ewes, adapted to a moor or mountain district.—First prize, £2, W. Raddale; second of £1, W. Raddale.

Fat ewe or wether.—Prize, £2, G. Wright, Broughton.

Extra stock.—J. Eldin, Seamer.

#### PIGS.

Boar of a large breed.—First prize, £3, J. Dyson, Leeds; second of £1, G. Chapman, Seamer.

Sow of large breed, in milk or pig.—First prize, £3, J. Dyson; second of £1, G. Chapman.

Boar of small breed.—First prize, £2, J. Dyson; second of £1, G. Chapman.

Sow of small breed, in pig or milk.—First prize, £2, J. Dyson; second of £1, G. Chapman.

Three store pigs of any breed, of the same litter.—First prize, £1, R. Wood, Hovingham; second of 10s., G. Chapman, for boar of large breed.

Sow of large breed.—First prize, £1, G. Chapman; second, of 10s., G. Chapman, for boar of small breed.

Sow of small breed, not exceeding twelve months old.—First prize, £1, J. Dyson; second of 10s., G. Chapman.

#### COTTAGERS' PRIZE.

Store pig.—First prize, £2, T. Raddale, Danby End; second of £1, T. Atkinson, Seamer.

Extra stock.—R. Atkinson, Seamer, for five sacking pigs.

#### HORSES—HUNTERS.

Stallion, thorough-bred.—First prize, £7, M. Webster, Ailerton Marishes, Pickering; second of £3, H. S. Constable, Wassand, Hull.

Brood mare, with foal at her foot.—First prize, £5, M. Leaper, Sledmere, Driffield; second of £2, G. Ringrose, Flinton, Grantham.

Yearling gelding.—First prize, £2, Sir G. Cholmley, Bart., Boynton, Bridlington; second of £1, M. Branton, Howe Hills, Aycliffe, Darlington.

Yearling filly.—First prize, £2, Sir G. Cholmley, Bart., Boynton; second of £1, J. Stephenson, Seamer Lane.

Two-year-old gelding.—First prize, £3, J. Robson, Rose Villa, Old Malton; second of £1, W. and B. Muxeen, South Holme, Slingsby.

Two-year-old filly.—First prize, £3, Sir G. Cholmley, Bart., Boynton; second of £1, J. B. Robson, Windle Beck, Ganton.

Three-year-old gelding.—First prize, £4, Sir G. Cholmley, Bart., Boynton; second of £2, J. Simpson, Field House, Hunmanby.

Three-year-old filly.—First prize, £4, J. Simpson, Field House, Hunmanby; second of £2, J. Wright, Kilham, Driffield.

#### COACHING HORSES.

Stallion.—First prize, £5, F. Richardson, Hall Road, York; second of £2 10s., Wm. Poat, Roston, Sherburn.

Brood mare, with foal at her foot.—First prize, £4, Messrs. Coulson, Gaterly Farm, Castle Howard; second of £2, J. Peacock, South Ings, Kirbymoorside.

Yearling gelding or filly.—First prize, £1, Mr. J. B. Baker, Throxenby Hall, Scarbro'; second of 10s., Wm. Goodwill, Roe Brow, Scarbro'.

Two-year-old gelding or filly.—First prize, £2, J. W. Coulson, Slingsby, York; second of £1, G. Hopper, West Ayton, Yedmandale.

Three-year-old gelding.—First prize, £3, H. Walker, Crescent, Scarbro'; second of £1, R. Fox, West Lutton, Wharham Station, York.

Three-year-old filly.—First prize, £3, J. B. Baker, Throxenby Hall, Scarbro'.

#### ROADSTERS.

Stallion.—First prize, £5, H. R. W. Hart, Dunnington Lodge, York; second of £2 10s., J. Crompton, Thornholme, near Lowthorpe.

Brood mare, with foal at her foot.—First prize, £4, Wm. Major, Sledmere Grange, Malton; second of £2, H. Brown, Strensall, York.

Yearling gelding or filly.—First prize, £1, M. Leaper, Sledmere, Driffield; second of 10s., J. Hall, North Burton.

Two-year-old gelding or filly.—First prize, £2, J. S. Darrell, West Ayton; second of £1, G. Watson, Newbegin.

Three-year-old gelding or filly.—First prize, £3, R. Emmerston, Dinsdale Grange, Darlington; second of £1, W. H. Cranswick, Thornholme, Lowthorpe.

Mare or gelding, of any age.—First prize, £5, J. Robson, Rose Villa, Old Malton; second of £2 10s., W. Major, Sledmere Grange, Malton.

#### AGRICULTURAL HORSES.

Stallion.—First prize, £5, Wm. Simpkin, jun., Burton Agnes, Lowthorpe; second of £3 10s., Joseph Johnson, Bampton, Bridlington.

Brood mare, with foal at her foot.—First prize, £4, J. W. Sharp, Ulrome Hall, Bridlington; second of £2, C. Leadley, Cloughton, Scarbro'.

Two year old gelding or filly.—First prize £2, J. Stephenson, Town-street, Falsgrave; second of £1, Executors of the late Francis Jordan, Eastburn, Driffield.

Pair of horses of either sex, worked during the summer.—£4, J. Simpson, Hunmanby.

Mares or horses under eight years old, not to exceed 14 hands 2 inches high.—First prize, £3, Wm. Simpkin, jun., Burton Agnes; second of £2, John Pearson, Costa Mill, Pickering.

Mares or horses under eight years old, not to exceed 13 hands high.—First prize £3, J. Medcalf, High-street, Bridlington; second of £2, H. Walker, Crescent, Scarbro'.

Extra Stock.—£3 to Richard Cress, Carlton Villa, Scarbro'; £1 to J. S. Darrell, West Ayton, York; £1 to W. Waters, Newborough-street, Scarbro'.

#### SPECIAL PRIZES.

Hunting gelding or mare of any age, by a thorough-bred horse, open to this district.—Silver cup the gift of the president, the Right Hon. Earl Feversham, E. Hornby, Flotmanby, Ganton.

Hunting gelding or mare, four years old, the property of a tenant farmer residing within thirty miles of Scarbro'.—Silver cup, the gift of Sir J. V. B. Johnstone, Bart., M.P. for Scarborough, J. Robson, Rose Villa, Old Malton.

Hunting mare or gelding, five years old.—Silver cup, the gift of J. Dent Dent, M.P. for Scarborough, G. Holmes, Beverley.

Harness gelding or mare, not less than 15 hands 2 inches high or above 16 hands, and not less than three but under eight years of age, by a thorough-bred horse, open to district

only.—Silver cup, the gift of the Vice-presidents, Henry Walker, Crescent, Scarborough.

Ladies' hackney, gelding, or mare, of any age.—Silver cup, the gift of F. A. Milbank, M.P., Sir G. Cholmley, Bart, Boynton, Bridlington.

#### LEAPING PRIZES.

Horses of any age, sex, or breed.—Silver cup, J. Crompton, Thornholme, Lowthorpe.

Pony of any age, sex, or breed.—Silver cup, J. Medcalf, High-street, Bridlington.

## BATH AND WEST OF ENGLAND SOCIETY AND SOUTHERN COUNTIES ASSOCIATION.

An amalgamation having been effected between the Bath and West of England Society and the Southern Counties Association, a special general meeting of members was held on August 25, at the "Three Choughs Hotel," Yeovil. Among those present were: The Most Noble the Marquis of Bath; Sir J. T. B. Duckworth, Bart.; Sir E. Hulse, Bart.; the Hon. and Rev. S. Best; Messrs. T. D. Acland, M.P., H. G. Andrews, R. G. Badcock, T. Danger, J. T. Davy, J. Daw, E. S. Drewe, Fras. W. Dymond, W. Farthing, Mark Farrant, H. Fookes, C. Gordon, John Gray, Jonathan Gray, John D. Hancock, J. Webb King, J. E. Knollys, Jos. Lush, T. Messiter, H. G. Moysey, Rev. T. Phillpotts, Messrs. G. S. Poole, John Sampson, H. G. Spicer, R. J. Spire, John Traak, H. Williams, H. Spackman (official superintendent), W. Smith (official accountant), and J. Goodwin (secretary and editor).

In the unavoidable absence of the Earl of Carnarvon, President for the year, the Marquis of Bath was voted to the chair. The minutes having been read,

Sir J. T. B. DUCKWORTH, Bart., as Chairman of the Amalgamation Committee appointed by the annual meeting of members of the Bath and West of England Society, held at Falmouth on the 3rd June last, moved that the title of the Amalgamated Societies be "The Bath and West of England Society (established 1777) and Southern Counties Association, for the Encouragement of Agriculture, Arts, Manufactures, and Commerce." He also moved the acceptance and confirmation of a code of laws for regulating the affairs of the society. Of these, however, the following only require to be set forth in detail:

"The West of England shall be divided into two districts, to be called the Eastern and Western, and the boundary-line separating Devon from Somerset and Dorset shall be the division of such districts; and the following counties—viz., Hants, Berks, Oxford, Surrey, Sussex, and Kent—shall form a third district, to be called the Southern. The Council shall consist of a president, vice-presidents, and sixty-six other members (thirty-three of whom shall retire annually by rotation, but shall be eligible for re-election), and shall be elected by the whole body of members. Eighteen members of the Council shall be chosen from persons residing or representing property in the Eastern district, eighteen from persons residing or representing property in the Western district, eighteen from persons residing or representing property in the Southern district, and the remaining twelve may be elected from the general body of members, without reference to districts. Every subscriber of £1 annually shall be a member; of £2, a governor, and eligible for election as a vice-president; and every yeoman and tradesman subscribing 10s. and upwards annually shall be a member of the society. Each member shall be liable to pay his subscription until he shall have given notice in writing to the secretary of his intention to withdraw. The subscriptions to become due and be paid in advance on the 1st of January in each year. All firms of two or more persons shall subscribe not less than £1 annually. The payment of £10 in one sum shall constitute a member for life, and of £20 in one sum a governor for life. To entitle a member to exhibit, he must have been a member for three months, and have paid his subscription, of not less than £1 for the current year, at least one month previous to the day of exhibition. Members subscribing less than £1, and non-members, will be permitted to exhibit stock, agricultural

implements, or other articles, on payment of such a sum as the council shall direct." On the motion of Sir J. T. B. Duckworth, Bart., it was also resolved that the following regulation be withdrawn from the general laws, in order to its modification for convenience of exhibitors and the society: "Entries must be sent to the secretary at least sixty-two days previous to the day of exhibition, who, upon their reception, shall forward by post printed forms of certificates to each exhibitor, which shall be filled up by him, and returned to the secretary at least forty-eight days previous to the day of exhibition." The laws having been accepted and confirmed, the following noblemen and gentlemen were elected vice-presidents or members of council for the Southern district:

VICE-PRESIDENTS.—Earl of Abingdon, Wytham Priory, Abingdon; H. Barnett, M.P., Glympton Park, Woodstock; Viscount Barrington, M.P., Beckett House, Shrivenham; R. Benyon, M.P., Englefield House, Reading; Earl of Carnarvon, Highclere Castle, Newbury; Earl of Chichester, Stanmer Park, Lewes; George Darby, Marklye, Hurst Green; Earl of Darnley, Cobham Hall, Gravesend; Sir Henry W. Dashwood, Bart., Kirtlington Park, Oxon; Earl Ducie, Sarsden House, Chipping Norton; Sir P. Hart Dyke, Bart., Lullington Castle, Eynesford; Viscount Eversley, Heckfield-place, Winchester; Lord Fitzwalter, Goodnestone Park, Wingham; Lord Hyton, Merstham House, Redhill; Duke of Marlborough, K.G., Bleinham-palace, Woodstock; Sir H. St. John Mildmay, Bart., Dogmersfield Park, Winchester; Lord Monson, Gatton Park, Reigate; Duke of Northumberland, Albany Park, Guildford; Melville Portal, Laverstoke House, Micheldever, Hants; Duke of Richmond, K.G., Goodwood Park, Chichester; Viscount Sydney, Frognaal, Footscray, Kent; John Walter, Bearwood, Wokingham; Marquis of Winchester, Amport, St. Mary's, Andover.

OTHER MEMBERS OF THE COUNCIL.—Colonel Bartlett, M.P., Hilliers, Petworth; Hon. and Rev. S. Best, Abbots Ann, Andover; Robert Clutton, Hartwood, Reigate; Lieut-Colonel Deedes, Sandling Park, Hythe; Joseph Druce, Eynsham, Oxford; Frederick Gill, Beenham, Reading; Sir J. Clark Jervoise, Bart., M.P., Idsworth House, Horndean; Lieut-Colonel Lennard, Wickham-court, Bromley, Kent; H. Middleton, Cuddeslowe, Oxford; P. S. Punnett, Kent House, Croydon; J. C. Ramsden, Busbridge Hall, Godalming; W. Ridden, Hove Farm, Brighton; Sir C. Russell, Bart., M.P., Swallowfield Park, Reading; George Shackel, Erleigh-court, Reading; W. B. Simonds, M.P., Abbott's Barton, Winchester; R. J. Spiers, F.S.A., Oxford; J. R. Stebbing, St. Andrew's Lodge, Southampton; J. S. Turner, Chyngton, Seaford.

With a vote of thanks to the Marquis of Bath for presiding, the proceedings terminated.

At a meeting of the council held on the same day as the special general meeting, the stewards and officers for the current year were nominated; and a letter by Mr. Caleb H. Gater, the local honorary secretary, having reference to the society's meeting at Southampton in 1869, was read, from which it appeared that the authorities of the London and South-Western Railway have promised the mayor of Southampton to give the fullest railway accommodation during the time of the meeting.



## THE WINTER FEEDING OF STOCK.

Assuming that the turnip and mangold crops of the present season will not exceed from one-half to three-fourths of an average weight of bulbs in the best-farmed districts, there is the prospective difficulty to be met—How are the ordinary numbers of cattle and sheep to be kept, and the usual numbers fattened? By the exercise of economy in the use of these crops, and of straw and hay, with the exercise of ingenuity in the selection and use of substitutes for roots, much may be accomplished; but all this will involve more than the ordinary expenditure in the purchasing of cakes and other feeding substances. The question, therefore, presents itself—Will this increased outlay pay? The question of repayment involves other questions which it would be well to consider, such as the price of stock, of hay, and what will be the probable prices of cakes, beans, peas, tares, oats, barley, Indian corn, carib beans, and of other articles suitable for the keeping and fattening of stock. The rates ruling in the markets at present for all kinds of feeding substances are high, and the probabilities are that prices will still further advance with the increased demand, as the average supplies arriving at British ports may not be greatly augmented notwithstanding the enhanced prices. The same heat and drought which was experienced in Great Britain during the summer was experienced generally on the continent, and with great intensity; therefore the root and spring-sown grain crops on the continent are, on the whole, deficient. The extent of this deficiency has not been estimated—the exception to the deficiency being the crop of Indian corn and rapeseed. The import of these may be considerable. Linseed, however, is under an average, and consequently the exports of linseed cake from the continent will be restricted. The same climatic conditions as experienced in Europe prevailed over the greater part of the United States and British North America. It is therefore to be inferred that, with the exception of Indian corn, the supplies of feeding substances from abroad will not exceed, if they reach, an average. A considerable proportion of the oleaginous seeds imported, however, come from the East Indies; the probabilities are, therefore, that, owing to the demand in Europe, the quantity shipped at Indian ports will exceed the average of previous years. Having pointed out the probable supplies of feeding substances from abroad, the next subject to consider is—Can the extent of land under turnips and rape be profitably increased by seeding a portion of the stubble lands during the present month? In the southern counties of England this can be undertaken with the probabilities of success, as, should the weather prove favourable for vegetation, a considerable growth of leaves, if not of roots, will be produced. In the northern counties of England, and in Scotland generally, the seeding of land in August with the earlier kinds of turnips, or with rape, will not prove of much advantage unless the season should prove exceptional; therefore any advantage to be derived from this source cannot be estimated as likely to amount to much. Should the weather prove conducive to the rapid growth of plants, the turnips and mangolds which withstood the drought and heat of summer will gain in size, and thus become heavier crops than their present appearance indicates. But after the experience gained by many farmers last season, they will not again so readily over-estimate the weight of bulbs from the luxuriant growth of leaves. Should the turnips rapidly improve during the three following months, the apprehended deficiency will be in part dispelled. Another result will likely arise out of genial weather—namely, an abundant growth of grass on the stunted and burned-up pastures.

Should the pasture lands afford a luxuriant growth of grass from the present time up to December, advantage will doubtless be taken of this herbage to economise fodder and roots. But stock in good condition, and which are being prepared for the shambles, will require a daily supply of auxiliary food. For cattle, cake proves the most suitable, the allowance being 4 lbs. daily at first, and increased to 6 or 8 lbs. daily. For sheep a mixture of cakes and grain, beans, peas, lentils, Indian corn, and other dry substances, prove the most suitable, and these will doubtless be given. By the judicious use of auxiliary

feeding substances supplied to stock kept at pasture during the autumn months, both fodder and roots will be economised, although this management of feeding stock has little to recommend it except when winter keep is scarce.

For the economy of turnips and mangolds nothing proves so efficient and certain as the passing of the bulbs through a pulping or slicing machine, and mixing the pulped or sliced bulbs with cut straw or a mixture of cut straw and hay. The proportions may be 3 lbs. of bulbs to 1 of cut fodder. By the use of these proportions feeding cattle will consume daily from 70 to 100 lbs. of the mixture when cake at the rate of 4 or 6 lbs. is allowed in addition. This will reduce the consumption of turnips or mangolds to about one-half of the quantity eaten by cattle fed upon cut bulbs and uncut fodder with the same allowance of cakes. The increase of the live weight of the animals will be about 2 lbs. daily, and in exceptional cases to 2½ lbs. daily. The proportion of pulped or sliced bulbs to the cut fodder can be still further reduced by the use of gruel to render the straw more palatable. The gruel may be made of ground oleaginous cakes, ground linseed or rapeseed, meal of any of the grains, or of molasses. The relative prices of these articles should determine the selection. Keeping in view their relative fattening qualities, linseed is superior to linseed cakes, and molasses to either of these. The gruel should be so prepared as that the seeds, ground seeds, cakes, and meals are reduced to a state of mucilage previous to the gruel being poured over and mixed with the cut fodder. By the judicious use of cut fodder so prepared, and a liberal allowance of cakes, cattle can be fattened rapidly, although a very considerable outlay for purchased food and labour is incurred, which is seldom met with where the cattle are sold.

Sheep kept on a mixture of feeding substances are usually healthy, and increase in weight and fatness corresponding to the kind of food supplied and the quantities eaten. Shelter, as in the case of cattle, also exercise a certain degree of influence on the health and progress of the animals; but the common breeds of sheep in the British Islands do not thrive rapidly when confined under cover, or when they are too closely penned. Ewes can be kept in a healthy state on cut hay supplied in troughs; these placed in a pasture field, the ewes having access to water. When high winds occur there is, however, a certain loss of hay. Aged sheep and hoggies which are being fattened can be kept on a mixture of sliced bulbs, cut hay, draff, and finely-broken cakes. When the prices of grain admit of one or more of them being used for feeding sheep, the grain may be substituted in part for the cakes.

In considering how the ordinary numbers of cattle and sheep kept on the farm are to be maintained, and the usual numbers fattened, the question of repayment for the additional outlay to be incurred in purchasing feeding substances require to be duly and carefully estimated. When a straw-cutting machine and a root-pulping or slicing machine, with horse gear for their effective operation, has to be procured, a certain per centage, say eight per cent., also falls to be added; but as the saving effected by the use of such machines is so great, a certain per centage may be deducted.

In estimating the probable returns from the stock kept and those fattened, the most important points to consider are the estimated prices in winter or spring of the stock kept or fattened, and the probable outlays in the purchasing of feeding substances to supplement the deficient root crops. This is one side of the question. The other is the increased price of the animals when sold, the enhanced value of the dung produced, and the all but imperative necessity of converting the straw of the farm into manure for maintaining the fertility of the lands. When the whole of the circumstances arising out of the present situation are duly weighed, exertions will be made by the majority of farmers to keep as near as it is prudent the average number of animals usually kept and fed. The estimates being judiciously calculated, the probabilities are that the number of cattle and sheep fattened during the coming winter and spring will be considerably under the average of former years.—*North British Agriculturist.*

## THE THREE AGES OF AGRICULTURE.

Some one has said "Agriculture is a science of locality." What! exclaimed I to myself—what is a science of locality? Are there any local sciences? Will that which is science here be anything different elsewhere? Having said this, I next asked—What is agriculture in relation to science?

Great most certainly has been the merit of the ancient agriculturists—Hesiod, Cato, Varro, Virgil, Columella, Palladius, &c.; but these illustrious men expose the existing practices rather than lay down new laws. Agriculture therefore existed before science. It was born with the world—with man in his first simplicity. It was not a *a priori* science, but it allied itself with science, received from it its fertilizing emanations, and derives from it a great power of production.

Agriculture in its course of progress has still other forms than the scientific form.

It has been asked, for instance, whether grammar is the *art* or the *science* of speaking and writing correctly, and we have wisely adopted the more modest formula *art*. It is thus with agriculture; it is not a *science of locality*, nor can it be always and everywhere a science. The human forces will not be able to maintain themselves always in such a diapason. Energies less strained are more natural to it. It seems to us that in proceeding from the simple to the complex, agriculture reckons three ages—namely, *routine*, *art*, and *science*.

Routine is the agricultural instinct, the tradition of ages over each land. It is in this, above all, that the spirit of locality displays itself. Every country has, from its origin, created an application of processes which have been maintained by tradition for centuries, and too often enclosed in an unalterable circle.

Routine adopts the most summary processes to obtain, from a given extent of land, an income from the smallest amount of capital or outlay, and is little covetous of results. The soil gives the law to man, rather than man to the soil; it seeks above all to produce food for man by cereals; it sows wheat in fertile land; rye or buckwheat on the sands, and abandons to the cattle the arid and marshy lands that have never been under the plough. The cattle it employs, whether from choice or necessity, are lean, but rustic, and its qualities are nearly those of the wild state: they are ill-fed, and preserve their vitality under misery. Routine feels an instinctive repugnance for those improved breeds, that advanced agriculture alone can support. Amongst vegetables it rejects in a similar manner those, the culture of which requires extra care and expense. The routinist never struggles against a difficulty. He seeks to live, not to enrich himself, and still much less to enrich the proprietor of the land of which he is the farmer. Well, does not this unconcern, so condemnable in a social point of view, indicate a kind of illiterate philosophy, a resignation to its obscure lot, that morality cannot rigorously condemn? Social economy, it is true, does not find its account in it. It asks for progress and wealth in the common interest; but certainly, Socrates, Plato, Horace, and Virgil, who had no suspicion of the laws established by the economists in our days, would have given the preference to the peaceable routinist, before the man who risks his repose and the security of his family by a too anxious pursuit of fortune. The famous strophe of Horace—

Beatus ille, qui procul negotiis,  
Ut prisca gens mortalium,  
Paterna rura bobus exerceat suis,  
Solutus omni fenore\*

—is the best eulogium on routine, which needs to keep itself out of trouble; and now not more than amongst the *ancient race of mortals* has it much need of the money-lender.

Routine may still allege in its justification that from the beginning of the world it has fed the human race, whether well or ill, without its complaining much of it; that whilst it watered the earth with its sweat, it too often bathed it with

its blood; that this all-fertilising manure, powerful as it is, compensates but little for ravages occasioned by warlike fancies; that it would have been sheer folly to make large outlays to see its harvests trodden underfoot or consumed in the green state; that, up to these latter days, it has been more often visited by wars than by learned men; that it has produced, in spite of the first; and that if, to eat its bread daily, the human race had only had the portion produced by the learned labourers, they would long ago have died of hunger. In the meanwhile, with the virtues of the Golden Age, men and nations remain poor. The husbandman is now no longer allowed to be a philosopher or too much contented. Willing or unwilling, he must enrich himself, or at least attempt to do so; for there is no place under the sun for him, but on this condition. A law of progress says to the husbandman what has been said to the soldier: "You shall march and advance, at all risks and dangers." When everything in civilization is moving, agriculture cannot isolate itself in order to remain behind: a fatal law draws it into the universal responsibility. It is bound to feed the human race, not inertly as formerly, but animated, energetic, forcibly drawn into a new movement that suffers no giving way.

The first step of progress, in departing from routine, is art, which seeks to free itself from the trammels imposed by the soil on routine. It studies the land, consults its productive specialities, calculates the powers of the machines or the drawing-gear required by strong or light lands. It endeavours to understand the nature of the manures that will act upon it with the greatest efficacy, the plants that will best succeed upon it, and the most advantageous openings for its various products. Thus enlightened, it wisely allows itself to be guided by that soil of which it has repelled the absolute domination, and made of it an associate. It directs its efforts towards the improvement of the land, strengthens the thin soils, pulverises those that are too compact, urges both to the production of forage crops, which will give value to cattle and supply manure. Cattle will give rest; manure will bring fertility as well for forage-crops as for cereals. The land thus produces by its fertility; but with routine, it is only solicited in its sterility. Under such conditions, agriculture may be termed a local art; for it is observation, judgment—art, in one word—by which it is directed. Art leaves much to be done to the soil, and in the time being. It avoids forcing the one too violently, and seeks not to anticipate too much the other. I have known skilful agriculturists who, in following the practices, both studied and prudent, of art, have resolved the following: To improve their capital and *cheptel*; to increase their revenue and the capital value of the land; to enrich the tenants or *metayers* who have worked with them, and to whom it had been necessary to advance money for the outlay (for they had chosen them for their moral worth, not for their financial situation); and, in short, leave good balances at the end of their administrations.

Science has a third manner of proceeding. Instead of leaving the soil master of the cultivator, as does routine, or of maintaining it in a relief as prudent as skilful, like art, it aspires to reign over it with a high hand. It seizes it bodily, clasps it in its powerful machines, purges it of water, or irrigates it at will, pulverises, improves, manures, and solicits from it varied and ceaseless products. The instruments it employs are skilfully combined, and executed to perfection; the plants it selects are those which culture has most developed, and of which it hopes to increase the improvement. The races of animals are selected from amongst the finest, most delicate, most precocious, most elastic—in a word, under good treatment, very certain that they will be seen to prosper under its hands, and secure large profits; whilst these same species would prove only a deception to routine, or presumption. In short, it directs his operations towards certain products which are converted by it into manufacturing products, such as sugar, alcohol, oil, silk, madder, &c. The oxen fattened in these establishments are no longer

\* Happy the man, who, remote from the busy mart of commerce, in imitation of the ancients, cultivates his paternal lands with his own oxen, untrammelled by any kind of usury.

the veterans of the farm; they are the objects of a rolling stock, which is returned every three months. In these learned workings the manufacturing capital is equal to the agricultural capital, and sometimes exceeds it, and whilst that of routine is invisible, that of agricultural science, manifested by immense outbuildings, manufacturing chimneys, furnaces, interior railways, a collection of the most useful agricultural implements, and valuable cattle, indicates that the lever is as powerful as the soil, and calculated to make it move under its pressure. Such land that yielded 5,000 francs (£200) under the reign of routine, returns 100,000 francs (£4,000) under that of science. But science is not a vain word in the question. Its immense stake demands to be conducted with extreme precision; the gross revenue exceeds six or seven times the net income, owing to its manufacturing character. Happy he who by his intelligence and the capital of which he has the disposal, is in a position to set in motion these springs, as subtle as they are powerful. Without these qualifications, beware who touches them!

From routine to agricultural science there is this gradation: Routine enables the cultivator to live without danger; but it impoverishes society. Art, well conducted, improves the condition both of the cultivator and the public. Agricultural science, it must be admitted, is often more profitable to the public than to the farmer who devotes himself to it. The celebrated Dombasle, who, in our time, has been the first in France to raise agriculture to the dignity of a science, has sunk his moderate property; but he has fallen nobly, like a soldier in the breach, for his country's glory. His sweat has not in vain bathed the soil of his country; it has fertilised in immortal proportion. The cause of his fall was not science, but the insufficiency of the capital engaged, to sustain the gigantic operations of science,

If we would *metallise* our three ages after the example of the ancients, we might say that, morally speaking, routine is the *golden age*, as has been so elegantly expressed by Horace; but in a social and economic point of view, it is the opposite, which is the truth. Routine is the age of copper, or of the lowest circulating coin. Art is the *silver age*; and science is the *golden age*, or, if you prefer it, the age of figures, for the "golden age" would be as deceptive in science as in routine. In the latter it perpetuates an anti-social inertness; in the former it often hastens the ruin of the generous athletes who devote themselves to agricultural glory.

Let us conclude therefore by saying—in routine, the husbandman is the slave of the soil; in art, he unites himself with it; and in science, he rules over it. But we also say—Science is necessary to agriculture, but not too much of it. The late Doctor Trouessart, in whom certainly science was not wanting, was fond of repeating, that in practice medicine ought to be considered an *art* rather than a *science*; sometimes it had even a benevolent regard to empiricism. This judgment was profound, and it is applicable to agriculture. Let us therefore endeavour to execute our agriculture with art, and carefully, which is a part of art in such matters; let us consult well our land, our markets, our strength; let us ameliorate our soil by the employment of implements the best adapted to it; let us especially endeavour to render it fit for the cultivation of forage crops which improve the cattle, which raise the rent and the manure; we shall thus have a fruitful soil and a certain income; we shall not philosophise in misery as under routine, nor shall we lose ourselves in the clouds of ambition, as is sometimes done in scientific agriculture.

CH. DE SOURDEVAL,

Hon. President of the Agricultural Society of Indre-et-Loire.  
—Translated from the French.

## MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY.

The annual exhibition of stock, agricultural implements, &c., commenced on Wednesday, Sept. 2, at Southport. The implements were shown on Tuesday, but the exhibition attracted little attention. The weather was magnificent, and the exhibition of cattle, &c., drew such an assemblage of visitors to the town as, in all probability, was never before witnessed.

The cattle were not numerous, but in point of quality the animals shown were in many instances of great merit. In horned cattle the first prize of £15 for the best bull of any shorthorned breed above two years old was won by Lady Pigot, of Branches-park, near Newmarket; the second, by Mr. Jonathan Peel, near Clitheroe. The first prize for any shorthorned bull above one and not more than two years old, Mr. C. W. Brierley, Middleton, near Manchester; the second, Mr. John Lynn, of Grantham. The whole of the cattle that were shown in the class for extra stock were highly commended by the judges. Amongst these animals were a Kerry bull and cow, shown by the rev. J. C. Macdonald, of Sefton; a shorthorned heifer, shown by Lord Skelmersdale; and a Breton cow, from Mr. Slater's herd.

The sheep exhibited a great falling off in point of numbers as compared with last year. There was, however, little to complain of in point of quality; and the Leicester sheep shown by Yorkshire farmers were especially commended by the judges. Nearly all the prizes for sheep were carried off by farmers who are not resident in the Society's district. Mr. Nield, of Worsley, carried off a prize with a very fine pen of ewes.

The excellence of the horse show undoubtedly warranted the prominence that was given to it. Not only were the entries in most of the classes large, but in those specially devoted to horses for agricultural purposes there could be no doubt that the very best animals in the district were exhibited. Mr. Brogden won the first prize for a three-year-old gelding or filly; and the best yearling colt was shown by Mr. Long, of Spofforth.

In the implement yard Messrs. Richmond and Chandler, of Salford, obtained a prize of £5 for their collection, and a silver medal for a new chaff-cutter. Messrs. Thomas Bradford and

Co., Manchester, were awarded a prize of £3 for their collection. A silver medal was also given to Musgrave Brothers, Belfast, who exhibited a model stable and patent fittings for cowhouses, piggeries, &c. A silver medal for a waggone was awarded to Mr. C. S. Windover, Huntingdon; and a similar prize to Messrs. Morgan, London, for a four-wheeled carriage. A patent adjustable rotary corn screen, shown by Messrs. Penny and Co., Lincoln, obtained a silver medal. The following also obtained prizes: Mr. A. Lyon, Finsbury; Messrs. Bayliss, Jones, and Bayliss, Wolverhampton; Messrs. J. L. Larkworthy and Co., Worcester; Messrs. Woods and Co., Stowmarket; the Agricultural and Horticultural Association; Messrs. Slack and Brownlow, Manchester; Ransomes and Sims, Ipswich; Mr. F. W. Fellows, Manchester; Messrs. Mitchell and Burgess, Manchester; Messrs. Piddock and Griffiths, Southport; Mr. H. Inman, Stretford; Mr. W. Robson, Southport; Mr. D. Harkes, Knutsford; Mr. H. Jackson, Salford; and Messrs. Pickley, Sims, and Co., Leigh.

The attendance was most satisfactory. Upwards of £1,000 was taken at the gates.

## PRIZE LIST.

### HORNED CATTLE.

Bull of any Shorthorned breed, above two years.—First prize, Lady Pigot, Newmarket; second, J. Peel, Clitheroe; third, J. Lynn, Stroxton, Grantham.

Bull of any Shorthorned breed, above one and not more than two years.—First prize, C. W. Brierley, Middleton; second, J. Lynn, Stroxton, Grantham; third, Lady Pigot, Newmarket.

Bull calf of any Shorthorned breed, not more than one year.—First prize, A. Dugdale, Burnley.

Bull of any breed, above two years.—First prize, J. Butterworth, Greenbooth, near Rochdale; second, W. Birch, Aintree; third, H. Higson, Pendleton.

Bull of any breed, above one and not more than two years,

—First prize, R. C. Richards, Clifton Lodge, Preston; second, J. Goolden, Hale, near Altrincham; third, J. Dickinson, Upholland, near Wigan.

Bull calf of any breed, not more than one year.—First prize, J. Dickinson; second, T. Atherton, Speke, near Liverpool.

Cow for dairy purposes.—First and second prizes, C. W. Brierley.

Lot of milch cows, not less than three.—First prize, G. Haworth, Lower Darwen.

Cow or heifer of any breed.—First prize, Lady Pigot; second, the Right Honourable Lord Skelmersdale, Ormskirk.

Two-year-old heifer, of any breed.—First prize, J. Lynn; second, A. Dugdale.

Yearling heifer, of any breed.—First prize, Rev. L. C. Wood, Kirkham.

Heifer calf, under one-year.—First prize, A. Dugdale; second, L. J. Crossley, Upper Willow Hall, near Halifax.

Pair of one-year-old heifers, of any breed.—First prize, J. Dickinson.

Lot of calves, own rearing, not less than three in number.—First prize, J. Birch, Sefton.

Alderney or Jersey cow or heifer, in-milk or in-calf.—First prize, R. Barton, Birkenhead; second, T. Stretch, Ormskirk.

### HORSES.

Thorough-bred stallion.—First prize, J. Moffatt, Carlisle; second, R. C. Naylor, Hooton Hall, near Chester.

Stallion adapted for road purposes.—First prize, T. Shaw, Mawdeley, near Ormskirk; second, J. McGregor, Acton, Northwich.

Stallion of the draught kind.—First prize, J. Wright, Tarleton, near Preston; second, W. Barron, Tarleton, near Preston.

Brood mare for draught purposes.—First prize, C. Richmond, Thornton, Great Crosby; second, G. C. Dewhurst, Lymm, near Warrington.

Hunter, mare or gelding, for carrying not less than 14 stone.—G. Van Wart, Edgbaston, first prize for hunter, second for jumping; W. Thompson, Manchester, first prize for jumping; W. Stephenson, Newbold Brough, Yorkshire, second for hunter.

Hunter, mare or gelding, for carrying not less than 12 stone.—G. Holmes, Beverley, first prize for hunter; A. Heywood, West Derby, Liverpool, second for hunter; C. Smith, Rugby, first prize for jumping; Le G. N. Starkie, Huntroyde, Burnley, second for jumping.

Thorough-bred brood mare.—First prize, T. Slatter, jun., Whitfield, Manchester.

Brood mare for breeding hunters.—First prize, R. Barton, Birkenhead; second, Captain F. Heskeith, Southport.

Hack or roadster, mare or gelding.—First prize, W. Thompson, Manchester; second, J. Clegg, Liverpool.

Cob, mare or gelding, not exceeding 14 hands 3 inches high.—First prize, W. Thompson, Manchester; second, E. Prest, Stretford, near Manchester.

Pony, mare or gelding, not exceeding 13 hands 2 inches.—First prize, W. W. Hulse, Withington; second, J. Brogden, Sale.

Pair of draught horses.—First prize, C. W. Brierley, Middleton.

Pair of draught horses.—First prize, W. Shawe, Lathom; second, W. Birch, Aintree.

Pair of agricultural horses.—First prize, T. Slatter, jun., Whitefield; second, Right Hon Earl of Crawford and Balcarres, Wigan.

Draught mare or gelding of any age.—First prize, W. Owen, West Derby; second, L. Ashcroft, Ormskirk.

Three-year-old gelding or filly of the draught kind.—Prize, John Brogden, Sale.

Two-year-old gelding or filly of the draught kind.—First prize, T. Waring, Standish; second, J. Dobson, Scarisbrick.

Four-year-old gelding or filly for road or field.—Prize, J. Paterson, Langholm, Dumfriesshire.

Two-year-old gelding or filly for road or field.—First prize, J. Peel, Clitheroe; second, J. Moffatt, Carlisle.

Yearling entire colt, gelding, or filly for road or field.—First prize, F. Long, Spofforth; second, J. Peel.

Three-year-old gelding or filly of the draught kind.—First prize, E. Porter, Ormskirk; second, W. Shawe.

Two-year-old gelding or filly of the draught kind.—First prize, H. Neild, Worsley; second, S. Cook, Linacre.

One-year-old entire colt, gelding, or filly of the draught kind.—Prize, W. Shawe.

Three-year-old half-bred gelding or filly.—Prize, S. Davies, Middlewich.

### SHEEP.

#### LEICESTERS.

Shearling ram.—First prize, T. Marris, Ulceby; second, T. H. Hutchinson, Catterick.

Ram of any other age.—First prize, E. Ryley, Beverley; second, T. H. Hutchinson, Catterick.

Pen of three shearling ewes.—First prize, T. H. Hutchinson, Catterick; second, W. Brown, Holme-on-Spalding Moor, York.

Pen of three ewes of any age.—First prize, W. Brown, Holme-on-Spalding Moor, York; second, T. H. Hutchinson, Catterick.

Ram lamb.—First prize, T. H. Hutchinson, Catterick; second, E. Ryley, Beverley.

Pen of three ewe lambs.—First prize, L. J. Crossley, Halifax; second, T. H. Hutchinson, Catterick.

#### SHROPSHIRE DOWNS.

Shearling ram.—First prize, H. Smith, Shiffnall; second, C. R. Keeling, Penkridge.

Ram of any other age.—First prize, H. Smith, Shiffnall; second, T. Mansell, Adcott Hall, Salop.

Pen of three shearling ewes.—First, J. Coxon, Lichfield; second, H. Smith.

Pen of three ewes of any age.—First prize, J. Coxon; second, C. R. Keeling.

Ram lamb.—First prize, J. Coxon; second, T. Mansell.

Pen of three ewe lambs.—First prize, J. Coxon; second, T. Mansell.

#### ANY OTHER CLASS.

Shearling ram.—First prize, T. H. Hutchinson; second, Lynn, Stroton, Grantham.

Ram of any other age.—First prize, J. Lynn; second, T. Marris.

Pen of three shearling ewes.—First prize, R. J. Owen, Liverpool; second, R. J. Owen.

Pen of three ewes of any age, having reared lambs in 1868.—First prize, H. Neild, Worsley; second, L. J. Crossley.

### PIGS.

Boar of the large white breed of any age.—First prize, J. Dyson, Leeds; second, S. Davies, Middlewich.

Boar of the middle-sized white breed of any age.—First prize, P. Eden, Salford; second, P. Eden.

Boar of the small white breed of any age.—First prize, P. Eden, Salford; second, T. Atherton, Speke.

Boar of the Berkshire or other black breed of any age.—First prize, M. Walton, Halifax; second, N. H. Abinett, West Derby.

Sow of the large white breed of any age.—First prize, P. Eden, Salford; second, J. Dyson, Leeds.

Sow of the middle-sized white breed of any age.—First prize, P. Eden, Salford; second, J. Dyson, Leeds.

Sow of the small white breed of any age.—First prize, P. Eden, Salford; second, T. Atherton, Speke, near Liverpool.

Sow of the Berkshire or other black breed of any age.—First prize, T. Atherton, Speke, near Liverpool; second, M. Walton, Halifax.

EXTRA STOCK.—Six young pigs.—Silver medal, W. Hutton, Addingham, near Leeds.

### CHEESE.

Samples of four cheeses, not less than 30lb. each.—First prize, G. Gibbons, Bath; second, R. Boffey, Nantwich; third, T. Finchett, Tarporley.

### BUTTER.

Sample not less than 5lb.—First prize, T. Harrison, Ashton, Ormskirk; second, H. Neild, Worsley.

## CLEVELAND AGRICULTURAL SHOW.

The thirty-fifth annual meeting and show of the Cleveland Agricultural Society was held on Thursday, Sept. 3, at Yarm. This society was established in 1833, upon a far more limited scale than would be thought from its present importance, and has since its formation passed through the usual periods of good and bad fortune. It has, however, managed to hold its own against all rivals in the district, and has more influence for good in this its thirty-eighth year of existence, than at any previous period. The show of 1864 was held at Middlesbrough, that of 1865 at Guisborough, that of 1866 at South Stockton, that of 1867 at Redcar, and that of 1868 at Yarm. The show of 1866, which occupied two days, lost much of its interest in consequence of the prevalence of the cattle-plague; but as the restrictions necessarily imposed during the prevalence of that dire disease have now been much modified, the show has this year recovered much of its former attractiveness and characteristic features; a cattle-show without cattle being anything but a promising affair. The entries in the various classes this year have been very satisfactory, and have quite equalled their most sanguine anticipations. The weather of the past two or three weeks has been a pleasing change from the tropical heat of the summer months, the effect of the recent rains being evidenced throughout the district by the thick verdure springing up in all directions, more particularly in the pastures, whilst autumnal tints of the landscape appear almost prematurely early in consequence of the remarkably good harvest having cleared nearly every field of its crop of corn. The spot selected for the show was admirably adapted for the purpose, situated about a quarter of a mile from the town, upon a rather elevated piece of ground forming a portion of the Spital Farm, whereon all the requisite accommodation had been judiciously arranged. The judges in the various classes were as follow:—*Hunters and Special Prizes*: Messrs. J. Parrington, Brancepeth, Durham; Chas. Wood, South Dalton, Beverley; and J. E. Bennett, Husbands Bosworth Grange, Rugby. *Cleveland Bays and Coaching Horses*: R. Hodgson, Northallerton; J. S. Darrell, West Ayton; and W. Hordon, Darlington. *Roadsters, Draught Horses, and Ponies*: J. Thomas, Northallerton; W. Bett, Spalding, Lincolnshire; and Edward Waldy, Darlington. *Implement*: Richard Kay, Forcett Valley, Darlington; and T. M. Cleasby, Wilton Grange, Redcar. The show of horses was satisfactory, and it was nearly six o'clock before the whole of the prizes were awarded. The following is a list of the prizes:

## CATTLE.

Shorthorned bull under three years.—1st, T. Johnson, Bishopton; 2nd, C. Smith, Yarm.  
Bulls under 18 months.—1st, R. Kay, Stockton; 2nd, C. Smith.  
Shorthorned cows, in-calf or milk.—1st, G. Pollard, Yarm; 2nd, T. Johnson.  
Cows for dairy-purposes, in-calf or milk.—1st, R. Lynn, Stockton; 2nd, T. Johnson.  
Two-year-old heifers, in-calf.—1st, T. Johnson; 2nd, S. Wrighton, Stokesley.  
Yearling heifers.—1st, T. Johnson; 2nd, C. Smith.  
Shorthorned bulls under three years.—1st, J. W. Botcherby, Darlington; 2nd, R. Thornton, Darlington.

## SHEEP.

Shearling rams.—1st, H. Elliff, Yarm; 2nd, W. Petch, Saltburn-by-the-Sea.  
Aged rams.—1st, R. P. Petch, Marske-by-the-Sea; 2nd, P. Sturdy, Middlesbrough.  
Pens of five breeding ewes.—1st, W. T. Horton, Yarm; 2nd, W. Petch.  
Pens of five shearling gimmers.—1st and 2nd, W. T. Horton.  
Tup lambs.—1st, W. Petch; 2nd, W. Blackburn, Northallerton.  
Blackfaced tups.—1st and 2nd, W. Rudsdale, Yarm.  
Pens of five blackfaced breeding ewes.—1st, W. Rudsdale; 2nd, C. William, Yarm.  
Extra stock.—1st, W. Rudsdale.

## FIGS.

Boars under two years old, of large breed.—2nd, John Blackburn, Stockton-on-Tees.  
Boars under two years old, of small breed.—James Appleton, Stockton-on-Tees.  
Boars under two years old, not qualified to compete with the above.—1st, Wm. Rudsdale, Yarm; 2nd, James Pearson, Northallerton.  
Sows of any age, small breed, in-pig or milk.—1st and 2nd, Edward Corner, Whitby.  
Sows of any age, not qualified to compete with the above.—1st, T. Reynard, Stockton; 2nd, J. Lowther, Northallerton.  
Grazing pigs, the property of labourers, tradesmen, or mechanics.—R. Emmerson, Stokesley.  
Extra stock.—1st, W. Kay, Darlington.

## HORSES.

Cleveland bay brood mares.—1st, J. Porritt, Guisborough; 2nd, Robinson Watson, Stockton-on-Tees.  
Cleveland bay colt foals.—1st, E. Brown, Stokesley; 2nd, Wm. Harrison, Yarm.  
Cleveland bay yearling fillies.—1st, Wm. Fawcett, Harsley; 2nd, R. Thompson, Northallerton.  
Cleveland bay two-years-old fillies.—1st, Leonard Manfield, Thirsk; 2nd, W. Smith, Stokesley.  
Cleveland bay three-years-old fillies.—1st, W. Harrison.  
Coaching brood mares.—1st, W. and F. Coulson, Castle Howard; 2nd, T. Hamilton, Thirsk.  
Coaching colt foals.—1st, Atkinson Watson, Stockton; 2nd, J. Winspear, Norton.  
Coaching filly foals.—1st, J. Snowball, Stockton; 2nd, G. and C. Lancaster, Northallerton.  
Coaching yearling geldings.—1st, C. R. Anderson, Middlesbro'.  
Coaching two-years-old geldings.—1st and 2nd, James Mewburn, Yarm.  
Coaching three-years-old geldings.—1st, R. Routledge, Appleton Wiske; 2nd, J. Mewburn.  
Coaching three-years-old fillies.—1st, I. Scarth, Northallerton; 2nd, J. Porritt.  
Roadster brood mare.—1st, R. Emmerson.  
Roadster foals, colts, or fillies.—1st, J. White, Stockton; 2nd, J. Goldie, Yarm.  
Roadster yearlings, colts, or fillies.—1st, J. Leng, Darlington; 2nd, W. Coates, Yarm.  
Roadster two-years-old colts or fillies.—1st, J. White; 2nd, J. W. Pease, Guisbro'.  
Roadster three-years-old colts or fillies.—1st, R. Emmerson, Over Dinsdale; 2nd, J. Garbutt, Northallerton.  
Hunting brood mares.—1st, J. T. Robinson, Thirsk; 2nd, G. and C. Lancaster, Northallerton.  
Hunting colt foals.—1st, T. Reed, Yarm; 2nd, W. and B. Muzeen, York.  
Hunting filly foals.—1st, J. T. Robinson; 2nd, G. Pollard, Yarm.  
Hunting yearling geldings.—1st, S. Atkinson, Darlington; 2nd, P. E. Satterthwaite, York.  
Hunting yearling fillies.—1st, Major Vaughan, Middlesbro'; 2nd, J. Hunter, Middlesbro'.  
Hunting two-years-old geldings.—1st, W. and B. Muzeen; 2nd, R. Jackson, Guisbro'.  
Hunting two-years-old fillies.—1st, R. Emmerson; 2nd, T. Knowles, Yarm.  
Hunting three-years-old geldings.—1st, J. Walton, Stockton-on-Tees; 2nd, I. Scarth, Northallerton.  
Hunting three-years-old fillies.—1st, J. Colpitts, Middlesbro'; 2nd, R. Jackson.  
Draught brood mares.—1st, T. Upton, Tadcaster; 2nd, G. Linton, Bedale.  
Draught colt foals.—1st, W. Johnson, Darlington; 2nd, J. Nightingale, Guisbro'.  
Draught filly foals.—1st, J. Donaldson.

Draught yearlings, geldings, or fillies.—1st, T. Upton; 2nd, H. Walton, Richmond.

Draught two-years-old geldings or fillies.—1st, R. Hird, Stockton-on-Tees; 2nd, R. Wade, Darlington.

Draught three-years-old geldings or fillies.—1st, T. Upton; 2nd, R. Wade.

Draught geldings or mares under eight years old.—1st, Fox, Head, and Co., Middlesbro'; 2nd, B. Spraggon, Stockfield-on-Tyne.

Pairs of young draught horses, the property of one or two persons within the district.—1st, Earl of Zetland, Marake-by-the-Sea; 2nd, Captain Chaloner, R.N., and G. Heseltine and Son, Guisbro'.

#### PONIES.

Mares or geldings under eight years.—1st, William Vaughan, Darlington; 2nd, Major Vaughan, Middlesbro'.

Mares or geldings under eight years, not to exceed 13 hands.—1st, Wm. Moses, Stockton; 2nd, John Bradley, Normanby, Middlesbro'.

#### SPECIAL PRIZES.

Six, seven, or eight years old hunting geldings or mares, by a thoroughbred horse, silver cup, Major Vaughan; 2nd, Robt. Hall, Stockton.

Five-years-old hunting geldings or mares, by a thoroughbred horse.—1st, Wm. Vaughan.

Four-years-old hunting geldings, by a thoroughbred horse.—1st, A. A. T. Newcomen, Redcar; 2nd, T. Clayhills, Darlington.

Four-years-old hunting mares, by a thoroughbred horse.—1st, John Hunter, Marton; 2nd, John Harrison, Sadberge.

Cleveland Hunt Cup for hunting gelding or mare of any age, by a thoroughbred horse, the property of a member of the Cleveland hunt (a resident within the district of the society), and which shall have been hunted during the last season with the Cleveland or Hurworth hounds.—Silver cup, Major Vaughan.

A prize of £5 was given (for the best leaper) to R. Jackson, Guisbro'.

Roadster, gelding or mare, not more than 15 hands 2 inches high, under eight years, qualified to carry 13 stone weight.—Silver cup, J. Robson, Old Malton.

Ladies' hackneys, geldings or mares, not to exceed 15 hands 2 inches, and not less than four but under eight years.—1st, R. Jackson; 2nd, J. Johnson, Northallerton.

Leaping prize for horses of any age, sex, or breed, which leap the artificial fences in the best style.—1st, W. and B. Muzen, Slingsby; 2nd, R. Emmerson, Over Dinsdale.

### SCOTCH FARMING IN IRELAND.

Our citizens can easily see "Lothian" farming within a very short distance of Dublin by taking a return ticket to Hazel-hatch, within one mile of the home farm of Lord Cloncurry at Lyons, tenanted by a Scotchman of capital, skill, and enterprise—Mr. Andrew Hope, of Castlewarden. The farm consists of about 400 English acres, running nearly a mile on the banks of the canal, laid out in twelve fields, well drained by the proprietor, who must have expended over £5000 on the farm, offices, roads, hedges, drains, gates, and other improvements. The whole of this farm is in tillage, under the Lothian system, there being no permanent grass. The crops, of about 80 English acres of white wheat of the best imported seed, and as many of oats, are unequalled in Ireland in the heads and straw. Should the weather prove favourable the produce of wheat saved will be over 40, and of oats over 60 bushels per acre, owing to the expenditure in manure and labour; the rest of the farm in one and two years old pasture and green crops, some of the fields of turnips looking well, but with rain and a free use of nitrate of soda the pastures would soon improve with a good second crop of hay. Over 5000 tons of manure have been brought out from Dublin since Mr. Hope got the farm, a couple of years ago, the freight by canal being 1s. 6d. to 1s. 8d. per ton. Lord Cloncurry gave him a twenty-one years' lease, at £2 15s. per Irish acre, ten shillings per acre (a loss to the proprietor of £125 a-year) under offers from solvent tenants, for the simple reason that Mr. Hope would till the land and employ the people. This is an example to other proprietors to do likewise, and if so, the grazing farms with a single herd would soon be changed into arable, and our people kept comfortably at home. The wages paid are 1s. 6d. per day, and over. The steward on the farm is from the neighbourhood, and the people working well. There are ten Mid-Lothian plough horses, which, with their ploughs, tackle, ribbons, and Irish ploughmen, could not be beaten in Lincoln, Norfolk, Haddington, or Berwick. The value of the present wheat crop on Skeagh farm would be £1100, but as this wheat is all fit for seed and equal to any imported from England or Scotland, it should bring much more. As oats are likely to be dear this year for feeding purposes, we might put its money value down at £700 to £800, or over £1800 for the grain crop. The wheat straw is five feet six inches high on an average, and the oat very long. The farm of Skeagh is well worth a visit. Leaving it we drove through Lyons demesne to Castle Warden, the mansion of the Pallisers, which Mr. Hope rents

on a twenty-seven years' lease, with about 250 Irish acres, at £3 per acre. Since he got the land he has squared the fields, removed useless ditches (turning six fields into one), and drained it where necessary. The wheat and oat crops on this farm are equally good as those at Skeagh, though not so much cultivated. Some thousand tons of manure brought out by canal have been freely used over the land. Two miles further, at Straffan, Mr. Hope took, on twenty years' lease (or rather the promise), the farm of Allasty, running nearly a mile on the banks of the canal, from Mr. Barton, at £3 per Irish acre. This farm, when held by Mr. Hall, was famous for its prize cattle; but from the improvements going on in draining, levelling double ditches and tilling them, thereby adding 30 feet to some miles of them on the farm, and making proper hedges, its value will be much increased. All the inferior land will be cultivated and laid well down, the canal giving great facilities, as many as three or four boats daily discharging their cargoes here from Dublin. Besides the enormous quantity of farmyard and Dublin manure from the cavalry barracks, Peruvian guano and nitrate of soda are largely used on all the farms. Lord Cloncurry, seeing the great quantity of manure brought out, withdrew all restrictions in his lease as to cropping, leaving Mr. Hope to do as he likes with Skeagh, but at Allasty the finest of the old pastures are reserved from the plough. By levelling useless ditches and tilling them, over 20 acres of land will be saved on the farms of Castle Warden and Allasty. The tenant farmers of Fife, East Lothian, and Berwick, paying £2 15s. to £4 per English acre, find they could not give such high rents by grass to make money, and consequently have all under a regular rotation of crops, which is followed wholly at Skeagh, and partially at Castle Warden. All the farms, over 1800 English acres, can be seen in one day from Dublin, either by driving out or taking the rail to Hazelhatch or Straffan. A good example has been set by the Scotch tenant farmers at Athy to their neighbours, which they are imitating, and no doubt Skeagh farming will be soon followed in this part of Kildare, where grass and its consequence—no employment for the labourer—is unfortunately too general, tillage farming being rare. The contrast will be seen here between Skeagh without any grass land, and the beautiful farm of Mr. Kennedy on both sides of the canal, all in grass, although possessing such facilities for manuring from the city. Besides the crops, more cattle are fed on Mr. Hope's farms than if all were in grass.—*Irish Times*.

## SUMMER FALLOWING AND GREEN MANURING.

It was a theory in farming, as formerly practised, that after a certain amount of cropping, land required rest, very much as the man who tilled the land, after a period of labour, found it needful to rest. Experience proved that summer fallowing had the effect of restoring fertility to the soil; but it may be doubted if many of our forefathers had any correct idea of the principles in nature according to which this result was obtained. Some vague notion about the land being exhausted, and needing rest, was well-nigh all they knew in reference to the matter. But the scientific explanation of reinvigoration by fallowing is, that in consequence of the exposure of the soil to sun and air, elements of fertility are absorbed, and chemical conditions obtained, which restore productiveness. Land is never exhausted by growing crops upon it; the exhaustion comes of removing the crops without giving back to the soil what has been taken out of it in the course of their growth. If the plant food taken out of the soil by a particular crop were faithfully returned, there would be no exhaustion, and no need of rest. Indeed under such treatment land would increase in fertility, since, to a certain extent, tillage is manure, and a constant stirring of the soil is highly favourable to productiveness. So, also, if the crop were suffered to remain on the land, and there undergo the process of natural decay, not only would there be no impoverishment of the soil, but it would increase in fertility, because growing plants obtain a portion of their nutriment from the air. Again, if, instead of its being left to decay, the crop is fed to animals who consume it on the land, their manure will so far enrich the soil as to prevent deterioration, and maintain the average standard of fertility; while by feeding these animals on meal, grain, or oilcake, in addition to such crop, the land is actually enriched.

Among intelligent and scientific farmers, the practice of green manuring has quite superseded the old plan of summer fallowing. This proceeding consists in the growth of green crops for the express purpose of the vegetable matter thus produced being ploughed under as manure. The most beneficial results have been found to follow this method, and it is every way desirable that it should be more extensively adopted. In explanation of the benefits thus obtained, it is only necessary to refer to a fact mentioned a few sentences back, viz.: that plants derive a portion of their subsistence from the air. If the soil were the only source of plant food, the growth of a crop could not add any new material to the land, or augment its fertility. The processes of growth might act beneficially on the soil, as they doubtless do, but nothing would be given to the land except what had been derived from it. But it has been abundantly proved that growing crops absorb a large amount of vegetable matter from the atmosphere, and when this is incorporated with the soil there must be proportionate enrichment. Nor is this increase of nutriment the only beneficial result arising from the use of green manures. If this were the case it might be a question whether a like quantity of fertilizing material might not be purchased and applied to the soil at the same or less cost. There is, however, the mechanical action of green manures to be taken into account, as well as their chemical action. In the case of strong clay soils this mechanical action is especially valuable. Such soils, though highly productive, are so dense and compact in their texture, that they are hard to work, and their stores of fertility may be said to be locked up, and to a great extent unavailable. After thorough preparation for a crop they soon harden again, especially when subject to the influence of dry, hot weather. Ploughing-under green manures renders a stiff soil porous and friable; a state of things very encouraging to the growth of roots, enabling them to penetrate the soil more freely in search of nutriment. Sandy and loamy soils are also benefited, especially by their becoming more capable of retaining moisture, which is held by the vegetable tissues thus added to the land. Manure is also more easily retained in such light soils, as the result of this process. Even blowing sands have by this means been so improved, that in process of time superior

farms have been formed on tracts of land previously considered barren and worthless.

A crop, to be suitable for green manure, must be of rapid growth, and a greedy feeder on the atmosphere. Mustard, buckwheat, and lupin are chiefly used in Great Britain for this purpose. In this country, clover, buckwheat, and Indian corn are the best green manures. The last-mentioned crop cannot be allowed much growth before ploughing under, or it will become too tall for burial with the plough. Buckwheat is a most excellent plant for the purpose under consideration. It grows very fast, feeds largely on the atmosphere, and is fit to plough under in four or five weeks from the time it is put into the ground. There is no better preparation for fall wheat than ploughing under a luxuriant growth of this plant or of red clover.

The age of the crop at the time it is ploughed in is a matter of much importance. Just before blooming, or when in full bloom, are considered the best periods, and authorities differ as to whether before or while blooming is the preferable time. By all means, however, the plant must not be allowed to ripen and perfect its seed. If this is permitted, the soil is robbed greatly, and much of the fertilizing material consolidated into woody fibre, in which condition it is not so nutritious or so readily available for plant food.

Another beneficial effect of green manuring, which has led to its being much encouraged in certain localities, is its destructiveness to the wire-worm. This insect, which is one of the wheat-farmer's greatest pests, is greatly checked in its ravages by the practice we are commending, and it would be well for those who are troubled with this marauder to try a dose of green buckwheat.—*Canada Farmer.*

## THE FARMER'S SONG OF THANKSGIVING.

The barns are well stored, our corn is all gathered,  
For plenty, sweet plenty, upon us hath smiled;  
In ploughing and seed-time we've roughest storms weathered,  
And now great abundance rewardeth our toils.  
But not unto us be the praise, but to Him  
Who from blights and from mildew our young crops  
defended;  
Then come one and all, and in thanksgiving sing  
For the rich harvest past, for the bright summer ended.  
How anxious we watched till the green blades appeared!  
How earnestly prayed we might not strive in vain!  
And oh! our deep joy, when the brown sheaves were reared,  
Broke forth into shouts we sought not to restrain.  
Yet not to our care be the praise, but to Him,  
On whom we for moisture and sunshine depended,  
Then come one and all, and in thanksgiving sing  
For the harvest now past, for the bright summer ended.  
Our orchards have team'd with the sweetest of fruits—  
Unfollowed by sickness, so often the case—  
Refreshment for man, grateful herbage for brute,  
And none of our homes swept by death and laid waste.  
But not to our worth be the praise, but to Him,  
Who o'er us his shield of protection extended;  
Then come one and all, and in thanksgiving sing  
For the glad harvest past, and for bright summer ended.  
And let us still trust the Great Husbandman's care,  
And hope when with power all His reapers shall come  
Among us, they'll find not an unsightly tare,  
But gather us in to the blest harvest home.  
"Not, not unto us be the praise, but to Him!"  
We'll shout, when life's toils are for ever suspended,  
And join the bright choir, and in thanksgiving sing,  
In the land where sweet summer shall never be ended.



## THE PAST, PRESENT, AND FUTURE OF THE WORKING CLASS.

The following Paper was read at a meeting of the British Association in Norwich, by Mr. F. S. CORRANCE, M.P.

Before I enter upon my subject let me say I do not pretend to teach. Rather to confess my own ignorance; rather to endeavour to bring home to the minds of others a feeling and sense of dissatisfaction which that ignorance has produced. Why is it? At least I will be plain on this point. Here within our own knowledge and immediate experience certain social phenomena crop up; combinations of large and homogeneous classes; extensive emigration; vagrancy; and pauperism of a new and threatening sort. These we find ourselves either unable to account for, or incapable to direct. Nothing can be less satisfactory. As legislators we cobble them up, perhaps, or stave them off, hoping that they may cure themselves; or we talk learnedly of some general laws, or universal principle, equally applicable to all times and circumstances alike—mere shreds and patches to hide our nakedness nevertheless. Are there no such laws? may then be asked—political, economic, or social—under which the process of civilization can be worked out? Is there no really solid ground under our feet? Are these problems almost infinitely complex? To most of us the reception of such an idea is painful, and by statesmen it would, doubtless, be considered unsafe. Mankind are governed for the most part by dogmatic belief. Here, however, we at least enjoy an immunity from any self-prescribed restriction of thought. The first duty of science is to doubt, and social science upon these points is in its infancy as yet. Investigation is the second step, and a patient collection of facts. Now, I am going to ask what many will doubtless consider almost an impertinent question. What do we know about our greatest class?—the wage paid? the proletarian? Oh, but it will be said, we know much. Look at the attention they receive! the amount of legislation! Is it not a subject upon which philanthropists and statesmen have been constantly at work? Now just mark to what effect. Laws of Settlement have not cured vagrancy; Poor Laws have not corrected the improvidence of the poor; Model Prisons and milder codes have not subdued the Devil's regiment of the line. Self-education has produced Trades Unions. Free labour does not follow Free Trade. Emigration neither raises up a kindred people, nor contents those who stay. The enforcement of better Sanitary Laws produces unforeseen hardship upon the poor class. These, then, are our failures. It does not betoken much knowledge, to be obliged to confess it. The truth is, we know very little at present of this labouring class. And what, then, of the past? How and from what has sprung up this great wage-paid class? Perhaps Topsy's answer would be best, "I 'spect they grewed." Yes, out of what? To know them in the present we must know their past, and without this we legislate or reason in the dark. We do not perhaps follow the law of growth. In entering into this retrospective inquiry, we shall find ourselves beset with difficulty from the first. Where are we to gather information if we go beyond the term of the present century? Even from annals like Porter, Yarrington, and Chamberlayne the information furnished is very defective upon most points. Statistics scarcely existed, and even estimates of population varied so greatly as to render it even now doubtful whether, towards the close of the sixteenth century, the population of this kingdom amounted to 2,000,000 or 5,000,000. Under such circumstances it is idle to pretend to trace any continuous or steady development among the labouring class: we must draw our conclusions from fragmentary facts, of obvious importance, and the record we have of legal enactments affecting their state. Among the former, two occurrences at widely different times seem to have exercised a powerful influence over the status of the working class. I allude to the Black Death of the fourteenth century, which, by almost depopulating a large part of Europe, raised the value of labour to a hitherto unheard of extent, and emancipated it from the merely servile character of the past to some extent. The word "menial" expresses this. Another such epoch is marked by

the reformation and suppression of the monasteries hitherto the almoners of the poorest class. Shortly after this period England seems to have been the home of a nomadic race, and if the extent of this evil may be estimated by the severity of the penal code, it must have been very great. All the old Saxon penal laws were revived against vagrants, and we read of whipping, branding, and even hanging for a second offence. Whatever might have been their habits and ways of life, there is no doubt that their number was very great; and of this some evidence exists, for we find that by one Mr. Stanley (who memorializes Royalty at this time) their number is set at 80,000, which, out of a population of less than 6,000,000, is startling enough. This may be doubted, but one thing it concerns us to know is this, that henceforth the law took cognizance of the fact, and the population was whipped, branded, and hanged into something like settled habits we might hope. What we find in some subsequent reigns is not re-assuring upon this point. At any rate, they were hanged, branded, and whipped. Nor was legislation idle towards the industrious class, as we shall see by a slight review of the enactments now and subsequently passed. By an Act 5th Elizabeth, justices were empowered to fix the rate of wages as well as work, and this was subsequently enlarged and extended to manufacture of various sorts by 1 James c. 6, 2 Car. 11. Nor was this power repealed until 53rd of Geo. III. c. 40. Then we come to a goodly list of enactments to encourage manufacture and to provide for the better payment of the poor employed therein. Section 22 of the same Act (Elizabeth) compels even artificers to leave their employment at harvest time, and to go out into the fields to work. Chap. 4, sec. 7, defines those who may be compelled by law to work at agricultural labour—idle persons not being gentlemen figuring among the list. Between this reign and that of Geo. III., we find twenty-one several Acts to similar import. The whole of these were repealed at once by 53 and 58 Geo. III., having probably long become obsolete. Their existence at these former times is not unindicative of the social status of the labouring class, and the slight distinction then enjoyed between the free labourer of "Merrie England" and the serfdom of the past. Even to this day some of these customs exist, and statute fairs are held within these Eastern Counties, at Harleston and some other places, for the hire of farm servants; and in Yorkshire, until a recent date, the usage prevailed throughout. Men and women stood in rows, if unhired, with straws in their mouths, which if hired they dropped. By the old statute no hire could be for less than one year; a law made no doubt for the protection of the poorer class, farm-work being then mainly confined to the summer months. Then servants lived with the farmer in the farm-house, and their wages were paid to a great extent in kind. An enactment, viz., Wm. IV., c. 37, once more prohibits this, and as it also applied to manufactures, we may date from this time the rise of the wage-paid class, current coin being the standard of work. At this time, also, many cottage handicrafts were in vogue, and the loom was common to these and the farm-house. Of such textile manufactures, flax and wool formed the most important part, the raw material being produced upon the spot. Nevertheless, progress up to such a point did not extend far North of the Trent. The great North had not yet woke up to a sense of her resources and strength, and even the commencement of the present century found that growing giant in a rudimentary state. Even in Scotland, neither the superior education of the people, nor their native industry, had borne much fruit; and we draw from Andrew Fletcher, Lord Kaimes, and others, evidence most conclusive on that point. It was not, says a local writer, until the last year of the last century that actual prædial slavery was abolished in Scotland, and there was one class—the colliers and salters—who were bought and sold with the estate upon which they worked, and men and boys were kidnapped and sold under the authority of the Borough Magistrates of larger towns. Trials for absconding were common enough. Of the state of Ireland I need not speak. Under such circumstances and popular conditions we thus find

ourselves brought up to the very verge of the present century, and once more exposed to the action of forces of a new and unprecedented sort. Such epochs constitute the cataclysms of the social state. Nevertheless, let us note, that although the circumstances were novel, and the material change has been great, the men are the same in most respects—the same in association, in sympathy, in belief; the results of the laws, the customs, and the habits, slowly formed and reluctantly given up. Two or three generations will scarcely suffice to change this, among an uneducated class. No one will now deny that these laws, habits, and customs were very bad. Indeed, this was being recognized at the time of which I speak, and the repeal of many took place at that date. Some, like the Poor Laws and Apprentice Acts, remained to be the subject of the great struggle which was shortly to take place. Wise and great men like Sir Matthew Hale, Mr. Locke, and Mr. Pitt already foresaw that these ill-conceived measures were likely to produce. Reforms were delayed by the advent of some greater events, and the full complement of the evil had time to develop under the changed conditions of the case. I have spoken of a cataclysm. Now let us see what were the agents in this case. The power loom, the steam engine, and some applied mechanics did more to change the social state than the Reformation or the Black Death; and instead of Luther, Calvin, or Cranmer, we may read Arkwright, Stephenson, and Watt. All through the wild and hitherto desolate North a stir took place, and in the general movement every industry seemed simultaneously to partake; and, concomitantly with that impulse, the population did not fail to increase:

Lancaster had in 1801,	692,731
" " 1811,	828,309
" " 1821,	1,052,859
" " 1831,	1,333,800

—an increase of 19,000 per annum.

Yorkshire (West Riding), 1801,	563,953
" " 1811,	653,315
" " 1821,	799,359
" " 1831,	976,400

or nearly 20 per cent.; and Warwick, Stafford, Nottingham, Chester, Durham, Monmouth, Worcester, and Salop showed a nearly equal increase. An immigration, almost without parallel, had in these few years taken place. Of course it came from all parts; and Irish, Scotch, and English were fused down into one compact and apparently homogeneous class—proletarians, at all events—and the factory system gave it solidity and strength. If we consider that, at the same time, a great revolution was taking place in the industrial condition of the class, and that the hand-loom weaver, and the stocking-frames, and cottage industry of all sorts, were soon to become extinct, it will be perceived how great a change was suddenly wrought. Men, women, and children were swept into the factory and the mill in a mass, and the one great feature of the nineteenth century became this creation of a wage-paid class. About 35,000 hand-loom weavers resolutely resisted the change, and became a gradually pauperized class. Now, what were our Legislature about? We have seen how active they were at previous periods. Here were conditions much requiring their care, no doubt. Perhaps, perceiving the folly of past enactments, they had learnt a lesson of "how not to do it" at least. Perhaps they were unable to prejudge or foresee the consequences of so novel a case—perhaps too much occupied in the much more interesting game of in-and-outs to take notice of mere social wants. At any rate, it was assumed that even under such circumstances the mere instinct of self-interest would, if sufficiently left to itself, supply all wants, and no legislation took place. The emigrants found their own level, not without loss; and it was not until 1835 that any official inquiry took place. Let me quote the Duke of Argyll as to the result: "Men and women had been brought together into a social communion of a new sort—under natural laws, no doubt; but it had not been long at work when it was perceived that a whole generation had grown up under conditions of mental and physical degeneracy, and in ignorance and vice. Many years after, it bore fruit; but it was not until self-interest itself had taken alarm, and the serious riots and turn-outs of Barnsley, Burnley, &c., &c., showed that something was rotten in the state, that really effective action took place. Of such rioters, nine hundred

were at one time confined in York Castle, previous to the Assize—a fact which I witnessed myself. During this time, and nearly up to these events, the old Poor-law remained in force; and just in proportion as this wonderful expansion of industrial power was manifested on the one hand, so did the evil of the system and the pauperism it fostered, increase. All the supplanted labour at once, and without effort, fell upon the rates; and the payment of wages out of these, both manufacturing and agricultural, was a very early effect of the system itself." We shall find traces of it almost from the first. Among the writers upon the subject we have treatises from the pen of Sir Matthew Hale, 1663; Richard Haines, *Lawrence Braddon*, 1722; James Child, 1694; Thomas Firmin, Roger North, 1753; George Chalmers, 1783; Daniel Defoe and Richard Burns. In all, or most of, these writings the root of every subsequent evil may be traced from the first. Roger North mentions the rates at Colchester as amounting to 50 per cent., while the makers of baize paid their labour out of the parochial funds; in fact, one thought alone possessed the ratepayer, and all his ingenuity was employed either to evade or to utilize his share of the rate. The administration of it was another thing, and did not much occupy his mind. Whatever public interest existed was absorbed in the struggle between houses and lands; and while they inflicted upon each other the heaviest penalties, these belligerents, with equal selfishness and folly, sacrificed the poor. These, no doubt, are heavy charges, but they admit of substantial proof; and how dearly they paid for it, statistics once more prove; for, while between 1536 and 1661 the rates remained nearly stationary, at an annual amount of £190,000 per annum, in the next thirty-one years, during which time these malpractices existed, they quadrupled in amount. Self-interest fought the battle; and self-interest, ever short-sighted, outwitted itself, and lawyers fattened out of the rates while paupers starved. Everybody got some pickings, except the poor. All through this and the many succeeding reigns, Acts of Parliament multiplied, while confusion of law increased, and rates rose steadily, until at the time we now approach 20s. in the pound was often reached, and the land was abandoned, and houses shut up, to avoid the rates. Among the most distinguished writers upon this subject in modern times were Jeremy Bentham and Sidney Smith, whose views, equally perspicuous and wise far beyond their age, extended not only to the battle then to be delivered, but the true principles of the campaign. They saw that, to extinguish pauperism, deeply rooted and inherited, laws almost penal might be necessary at first. They engaged self-interest upon the true line of defence. But at this point they did not stop: they equally recognized a moral, as well as a material, want, and impotence of mere poor-laws and bureaucratic administration to produce such an effect. Bentham speaks thus: "But compassion is one thing; and relief, efficacious and mischievous, is another. The one may be always bestowed, and in any quantity; the other should never be attempted to be bestowed, especially at the expense of the community, until after the most strict and comprehensive enquiry whether the undertaking lies within the sphere of practicability, and whether the removal of the evil be not inseparably connected with more extensive and no less permanent evil. To banish not only indigence, but dependence, it would be necessary to banish not only misfortune, but improvidence;" words which seem to me replete and luminous with truth, though of a nature which it is not given to mere official intelligence to penetrate, nor of a kind which unassisted bumble-doom could carry out. Now, let us turn to another authority—Sidney Smith. He says, in 1825: "A pamphlet on the poor-laws generally contains some little piece of favourite nonsense by which we are gravely assured that this enormous evil can be perfectly cured. The first gentleman recommends little gardens; the second, cows; the third, a village shop; and if we add to these the more modern idea of land subdivision, we are pretty well at the end of such a list. As to the children, they are to be lodged in immense pedagogues of several acres each, and to be brought up in virtue by the churchwarden." "There are two points," he says, "which we consider as admitted by all men of sense: First, that the poor laws must be, not amended, but abolished; and second, that they must be very gradually abolished. We think it hardly worth while to throw away pen and ink upon anyone who is inclined to dispute the above proposition. We shall think the improvement immense, and a subject of very

general congratulation, if the poor-rates are perceptibly diminished, and if the system of pauperism is clearly going down in twenty or thirty years hence. We have stated our opinion that all remedies, without gradual abolition, are of little importance. With a foundation laid for such gradual abolition, every auxiliary improvement of the poor-laws, while they do remain, is worth the attention of Parliament; and in suggesting a few alterations as fit to be adopted, we wish it to be understood that we have in view the gradual destruction of the system, as well as the amendment, while it continues to operate." The poor-laws were amended a few years subsequently to this, and we have now thirty years' experience of their efficacy to produce such a result. Since Sidney Smith wrote, nearly a half-century has passed, under circumstances more favourable than any our history can present—a time of peace, of free trade, of unequalled increase of wealth, of unparalleled emigration, and education more widely diffused; to what effect, the following statistics will best show:—

A.D.	Population.	Pauperism.	Expenditure.	Poundage.	wheat at	Rateable property.
				£ s. d.	s. d.	£
1834	14,322,000	—	6,317,255	—	—	—
1844	16,410,000	900,000	4,976,093	1 6 3	—	64,000,000
1854	18,617,000	864,617	5,332,853	1 8 161	7	69,000,000
1864	20,683,000	1,014,078	6,423,383	1 4 543	2	—
1865	20,881,000	961,899	6,264,961	1 4 39	8	93,800,000
1866	21,100,000	916,152	6,439,517	—	43 6	—
1867	—	1,040,962	6,969,840	—	53 7½	—

During the same period the emigration has stood thus:—

1861...	22,145	} England and Wales.
1862...	35,487	
1863...	61,243	

Now, these were conditions upon which neither Bentham nor Smith could count, and to what result? Is pauperism extirpated? Have the rates decreased? Are poor-laws abolished? Is there, under this system, any reasonable expectation of it "fifty years hence?" As a system, it has taken firm hold of men's minds, and, as a vested interest, it claims its place. It is an important source of patronage and place, and the management charges are daily on the increase, viz.:—

In 1853, salaries, &c.....	£596,162
1863 " .....	696,098
1866 " .....	730,704
Increase in 14 years, £134,542.	

On the other hand, what have been its effects? Morally, upon which so much stress was once placed, what men has it reclaimed? Who has it made more provident? What encouragement or assistance does it hold out? It acts by repression, it pauperises, it exacts a hard and rigid test; but it is not even so far a material success. Are we satisfied with it? Tested by the standard of Bentham or Smith, it is a failure throughout. How long shall we deceive ourselves upon this point? Poor-laws may satisfy a present requirement, but they cannot cure pauperism itself. If we meet a moral evil by a mere administrative change, we seek for the living among the dead. I have alluded to the condition of the labouring classes subsequent to the great immigration which took place into the north. And here legislation has played its part with greater success. The repeal of apprentice laws, and the introduction of the Factory Act, followed an inquiry in 1835 to a most beneficial effect. In education, also, some progress has been made, aided by the state. The amendment of the Master and Servant Act, and the regulation of the agricultural gangs, are efforts in the right direction at least. The Bill for Artizan Dwelling Houses opens questions of a more serious class; and it is doubtful how far such interference can be carried, without altogether discouraging that tendency to numerical increase, upon which, more than ought else, must depend the cheap house accommodation of the working-class. Protection may do harm as well as good in such a case. At this point, our review of legislation must cease, for the present at least, for there is another side to the picture, which I must not neglect. I have said that during the early part of the present century but little legislation took place. Government was out of fashion, and self-interest was supposed to supply the want. It claimed to be enlightened, of course. We have seen what, under certain circumstances, was the result. Of course,

Anglo-Saxons would not stop at this, and, taught self-dependence, and with self-interest prescribed as the great rule of life, they set to work according to their light, and applied the doctrine to some remarkable effects. They formed friendly and co-operative societies, the progress of which I now propose to trace; and they formed also those trades' unions, so much now talked of, and framed moral and social laws to match. These at least were natural results. As a social contract, they recognized common interests, which even seemed to them more noble than self. As a moral code, it was defective; but this was also natural, perhaps, under the antecedents I have pointed out. The first of the friendly societies was recognized by law in 1793; and since that date we have had twenty-six different Acts to regulate and amend these laws. Nearly the whole of these are now repeated by the Act 18th and 19th Vic., cap. 63. Many of them are of very ancient date, but these were rather guilds than provident institutions, for the wage-paid class. For their full development, we must come up to the 19th century, during which the number has reached 24,800, with 3,000,000 members, and £20,000,000 of assets in hand. This, in itself, is a most significant fact, especially when the circumstances are taken into account. Left to themselves, and scarcely countenanced, they could not fail to be open to abuse, and knowing as we do the great propensity to fraud which attend all such transactions, upon the unwary and the weak, it seems wonderful that they should have been on the increase, or gained the confidence of such a class. Many of them are by no means rich, as the following returns sufficiently prove. Of 10,264 which made returns, there were:

3,181 ...	with less than	£100 in hand
4,222 ...	from ...	£100 to £500
1,602 ...	" ...	£500 to £1,000
903 ...	" ...	£1,000 to £2,000
316 ...	" ...	£2,000 to £5,000
50 ...	" ...	£5,000 to £10,000
18 ...	" ...	£10,000 to £20,000
12 ...	" ...	£20,000 to £50,000
3 ...	" ...	£50,000 to £100,000

Among such societies the Royal Liver is a leviathan, and its progress is in itself a remarkable fact worthy of record. In 1861 its assets were £15,092, since which its increase has been at the following rate: 1863, £18,004; 1865, £25,630; 1864, £39,036; 1866, £55,460; 1866, £78,026; 1867, £103,355; 1868, £132,373. To their success there is, however, one formidable obstacle, the management expenses, and this item does not, as might be expected, decrease in proportion to the number insured. In ten of the largest, these expenses amount to from 25 to 50 and 95 per cent. of the amount expended in relief: of these the largest are the worst, viz., 15s. to 16s. in the pound—a feature which, however, explained, is by no means a desirable one in such a case, and is no doubt the result of neglect, or a vicious system from the first. Unaided from without, it could not be otherwise in this case. Nothing perhaps can show the necessity and advantage of a sounder system (though by no means unexceptionable in itself, and partaking of the evil pointed out) than the success of the Post Office Savings' Bank, the number of which between 1861 and the end of 1866 had increased from 2,535 to 3,509; the number of depositors from 639,216 to 5,421,066; while in the old and new savings' banks at the close of 1866, the number of depositors amounted to 2,149,764, and the deposits to £44,495,806—facts which seem to me to clearly indicate the future course, and the necessity of authority to guide and direct the effort, and to protect the weak. All that is ever urged against these societies tends to such a point. They are the speculation of a clever knave, or for the benefit of a public-house. What else can we expect, and whose fault, if this is the case? Is it a new feature that idleness should prey upon industry, or that a man should put his brains to the worst possible use? Does not society guard itself with all its power against such abuse? That we know it may be otherwise is enough. In such eminently successful undertakings as the Essex Provident Society, with 8,000 to 9,000 members, and £70,000 assets; the Hants, with 3,000 members, and £35,000; the Hereford Friendly Society, the Shropshire, the Wiltshire, the Rutlandshire, the Lois Weedon, and the Beau Manor and Woodhouse, we see the true results of sound principles, and great and philanthropic efforts of good men, whose genius has thus enriched

others, and whose reward is not of this earth. But society which applauds should do more than this, or it abrogates its highest task. At all times the most important provisions of the working class must be that of medical attendance, and a supply of medicine of an unadulterated and genuine sort; and in nothing does the present system of Poor Law administration fail more signally. In so saying, I cast no reproach upon the excellent and able men who devote so much ill-remunerated talent to professional duties of this class; but there are obvious reasons why this sort of attendance should be of an unsatisfactory nature to both. In the Medical Club we have a great advance upon this. The working of independent Sicknes Clubs require no very complicated management, and since the establishment of these at Crickdale and Wootton Bassett, many equally successful have sprung up. The main obstacle is the dependence upon Poor Law relief. Let us now turn to associations of another class. In the former societies the moral requirements are rather of a passive than an active nature, so far as members are concerned, and the effort is one rather of self-denial than adventurous. It is not so in this case. In these the man, through social combination, seeks a higher status, and enters into the great struggle which he sees around him, to rise above the mere satisfaction of the daily want. He enters into competition with capital, and makes it at last his servant instead of master. The undertaking is no doubt a bold one, and requires no ordinary advance of intellectual power and endurance to carry out. We shall see that it has been done, nevertheless. As might be expected under the circumstances already detailed, the history of these co-operative associations among the working classes is not of old date, nor does it belong to the past. It is essentially modern—the result of education, intelligence, and ideas to which the present century has given birth. Even under these circumstances the early effort was a weak one and generally failed for want of knowledge, or honesty, or endurance; and at this time it is probable that entire success must be a partial result. Still if we turn to the evidence we possess, they afford most satisfactory assurance that both the qualification and the conditions exist. It is now nearly a quarter of a century since 28 poor Rochdale weavers appeared to have formed the bold idea of a combined effort of this class. Communism had failed practically and politically, but it seemed at least probable that the great commercial success of Joint Stock Companies might be emulated to a certain extent. Under this impression they set up a store. At the close of 1845 its numbers amounted to 80. The capital was £182. Its weekly sale averaged £30. Weathering the storms of 1847-8, its number increased to 140, capital to £397, and weekly receipts to £80. In 1850 the numbers were 600, capital £3,299, weekly returns £338; whilst at the present time it exists as a vast commercial company, whose capital is £62,000, and annual business £194,000. The humble room in which the first business was transacted has grown into a vast warehouse, with sixteen trade departments, with libraries, reading rooms, and scientific institutions. Since that time they have rapidly taken root, both in England and upon the continent, as the returns made by the Registrar in 1866, under 25 and 26 Vic., c. 87, show. There are now 436 of these companies.

The number of members are	...	...	173,243
Admitted during the year to December 21, members	...	...	36,700
Withdrawn do.	...	...	14,639
Amount received on salaries to December, 1866...	...	...	£1,340,274
Withdrawn do.	...	...	619,088
Amount of share capital 31 December, 1866	...	...	1,048,096
Do. loan capital do.	...	...	108,023
Received on loan during year do.	...	...	35,373
Do. loan repaid do.	...	...	34,349
Cash paid for goods	...	...	3,986,754
Amount paid for interest do.	...	...	45,779
Profit realized	...	...	376,294
Total expenses	...	...	235,454
Cash in hands of Treasurer	...	...	192,803
Total value of assets	...	...	1,009,849
Total amount of trade liabilities	...	...	334,561

The objects embraced under these associations are multiple, but they may be divided into at least three great classes, those having for their object the transfer of goods or merchandise, the societies of credit, and societies of production; the last of

these being by far the highest effort, and promising the greatest social result. Under this head will come the Building Societies, which offer to the associates the redemption of freehold house, or cottages, under certain condition neither onerous nor attended with risk. In France the Society of Masons have most successfully carried this out, and it is gratifying to find that the inspiration for one of the most successful of these proceeded from the designs of the Prince Consort for model cottages in this country. Even in agriculture the plan has been tried with a fair amount of success, and the experiment of Mr. Gurdon, of Assington, deserves a far larger notice than I am now able to afford. That such a system can or will even supplant the system of scientific agriculture, aided by machinery, need not be dreamt of; but this again is not of universal application, and I am inclined to think that its true field of utility will be found under different social conditions than those of the East of England at least. Ireland is the most tempting ground for a campaign of this sort, and if the smaller tenants could be thus brought under the influence of a social bond, and massed together, both their moral and social character would greatly gain, even if followed by no material result. The first impulse must be given from without, and the landlord or agent be the connecting link. Some knowledge of Ireland prompts me to make this remark, which time forbids me to follow out. As a means of laying together land, without trenching upon private rights, or wounding susceptibilities, it deserves consideration at least, and it does not seem to me at all opposed to the genius of a social and quick-witted race. Before I quit this subject, nevertheless, I will make one final remark. As in the former instance, British legislation has followed these efforts at a tardy pace, for whereas (as we have seen) the Rochdale pioneers commenced this work in 1844, the first legislative Act having direct bearing upon these societies was passed in 1852, and this again was repeated in 1862, and once more modified under 30-31 Vic., ch. 17, 1867. So recent are these great efforts of the wage-paid class, and so little has legislation to do with their state. In dealing with social questions like these, there is one it is impossible to pass. Concerning the Trades' Union Societies, considered purely as such, there is but little new to be said, nothing which would convince either of the parties interested, that theirs was the wrong side of the dispute. It will be something if we can prove, in a manner to defy doubt, that their existence is an evidence of an imperfect social state; of defective knowledge; and of laws, hitherto of no very equitable class. It is against these that the idea of resistance was first based. No one who is well acquainted with the penal codes, both of England and foreign countries, will doubt this. And if, under the new sense of power and liberty, ignorant or half-informed men have acted upon a doctrine which learned men have sanctioned—that of self-interest—it is not to them alone that blame must be attached. If, under such circumstances as I have elsewhere detailed, the development of such natural habits of thought have been allowed to proceed unchecked, what right have we to wonder? These men are bad economists. They are reckless, except of present gain. Their morality is not our morality. Even our arguments are not understood. These are very grave features, let us admit; but what have you hitherto been about? These things do not grow up in a night. They follow as darkness follows light. They will pass away, but the dawn may not be yet, and we must, I believe, be content to wait, not with folded hands, nevertheless. These labour laws (self-imposed and onerous) will play their part—as other labour laws now obsolete—but they will not survive the circumstances which brought them forth. If we study and know their antecedents, then we can prescribe. How little has this been the case! It is argued that time presses, and the effect may be destructive of what exists. Of this fact no one is more sensible than myself. But of this fact no less, that no mere empirical remedy will deal with or dispose of it, no mere platform addresses or denunciations, even from a trusted source. It must be examined, tested, and if reproved, then in no unkindly spirit, lest obstinacy come to the aid of want of sense, and the last state is worse than the first. By politicians it is scarcely possible that such an examination should take place, or that even then they would dare to express the convictions they held on many points. The question is one for social science to patiently investigate, and for the press to winnow out. That in its present form it is but a passing and transitory accident, we may, I think

(judging from antecedents), feel convinced. Its principle of self-sacrifice is perhaps the only imperishable part, and even this contains but too much dross. Here, however, I must stop. Time will not permit a further review. Having thus far endeavoured (imperfectly, no doubt) to trace out upon some broad and generally applicable conditions the past and present of the working-class, it is time to draw to a conclusion, and ask, To what does this conduct? In this review we shall have seen both the imperfection of legislation, and the partial failure of self-developed systems to work out a sound social state. It would be easy but not wise to indulge in sweeping denunciation of each; pleasant by bold generalization to establish theories condemnatory of certain persons or a certain class. It is very hard to acknowledge the truth, that a great work of inquiry still lies before us ere we shall be at all competent to deal conclusively with the case. Until this is done we shall follow the lines of development with uncertain steps; and yet who doubts that we must bend every effort to the task? If legislation is difficult, abandonment of the task is unsafe. Spontaneous development can only be trusted where education is complete. With poor laws, friendly societies, and trades' unions, what shall we do? They belong to the future, as well as to the present and the past. If not too bold, I would hazard a suggestion or two as to these. In the Poor Law we have a gigantic and most expensive machinery to fulfil an inadequate task. In some parts its uses have dwindled away; in others it is overworked; as a whole it fails. Upon the moral side its influence ceased, probably, within ten years after it was passed; but few seem to suspect this. The question, I say, will arise, Is not this vast machinery applicable to something beyond it? The labouring-class will ask it at some future time. Struggling, unaided, to economise their own resources, have they no right to some assistance from an organization such as this? Are the funds of a friendly society of less consequence than that spent to relief? In fact, is not the formation of a district friendly society within the province of the Union House? Not one

farthing beyond management need fall upon the rate, and how much more should we save than this! Of this I feel convinced, that in a country parish or union, under a really good local organization, and with concert among employers of labour, in one generation all pauperism might become extinct. In towns we should not so soon arrive at that state. I will not here enter into the details nor examine the *data* upon which I say it; but they have been well considered, nevertheless. It is not Utopian to hope to arrive by such means at a much higher degree of organisation than we now possess, and even to count, with some degree of certainty, upon the time when no union would want its dispensary, its house for infectious disorders and common school, its medical staff and a refuge for the incapable and friendless of either sex; and this, too, without recourse to the rates. These, absorbed into wages, should furnish the contingent to the provident fund, and form the surplus over the bare necessity of the labouring-class. Employers would lose nothing by it, while to the employed the gain would be immense. To accomplish it one generation would suffice—would suffice, I say, if men were earnest in the task. The Utopia commences from this point. The inertia of established habits is upon them, and custom is still king over their thoughts. At least let them remember that an increasing pauperism and a vicious code of social laws is no safe or pleasant feature, and it is one which repression has altogether failed to check. Is there no gentler code which we can suggest more in accordance with social economy and the Christianity we profess? And if thus combined, they equally enjoin laws framed upon some higher principle than mere self-interest could prescribe—to ends infinitely beyond those of which self-interest ever dreamt. What, I say, if, under such influence, that class should learn to regard such social laws as their best protection and guide? Is it not possible that the future of the working-class may be found in this—the expression at once of a lofty civilization, and the expansion of a sentiment which dawned upon the heathen world at Calvary, and poured down a blessing from the Cross?

## LAND FLOODS IN TIDAL RIVERS.

The effects which floods produce in tidal rivers differ in many respects from those produced by inland floods above tide mark. This difference arises chiefly from tidal action, *i. e.*, from the ebbing and flowing of the tide. It is, however, not so much this difference which we propose discussing in this paper, as the effects which the more rapid and thorough drainage of the country is producing in the beds of tidal rivers, including the removal of town-sewage, the purification of tidal rivers, and the improvement of inland fisheries effected thereby, as well as by the improvement of the fisheries in the tidal portion of such rivers.

Our subject thus embraces (1) the effects produced by the increase of volume, velocity, and force of the parent stream from tide mark at high water, or from where the parent stream first meets the tide at high water; (2), the effects produced by tributary tidal rivers in the bed of the parent one; (3), land floods in the tidal tributaries themselves; (4), the removal of sewage, and the purification of the river; and (5), the discharge of filtered sewage, and sewage in its normal state, into tidal and inland rivers, and also into the ocean near the mouths of tidal rivers.

1. Assuming the depth and breadth of the river at low water, where it enters the ocean, to be equal to the depth and breadth where it enters the tidal bed at high water, then the inclination of the channel, and hence the velocity and force of the stream, will be inversely as the length of the tidal bed. Thus, if the length of the tidal bed is sixty miles, and the height or rise of the tide above low-water mark twenty feet, it gives a uniform fall of four inches per mile over the whole length. In point of fact, however, it is seldom that the fall over the whole length of the tidal bed is uniform; but into the minute details of individual examples we cannot go; and, therefore, the above uniform fall will be sufficient for illustration. If, on the other hand, the length of the tidal bed is only twenty miles, and the rise of the tide twenty feet as above, it will

give a uniform fall of one foot per mile over the whole length of the tidal portion of the river. In a similar manner the fall per mile of tidal tributaries may be determined.

"The scour of the river" is directly as the fall and the volume or quantity of water in the river; and as the volume of water has been increased by the improved drainage of the country, during heavy storms the scour of the river has also been increased during the ebbing tide, or at low water. This increased scour has for its immediate effect the deepening of the channel, and the removal of heavier sand and gravel farther down the river towards its estuary, and there cannot be a doubt but that this has been experienced in those rivers thus affected by improved drainage. From the slow manner the work of drainage has been performed, the immediate effects produced may not have been perceptible to the eye in many examples; but such is no valid argument to the contrary; for the cause being manifest, so also is the effect produced during heavy floods.

This, however, is not all that must be said under this head; for it is a well-known fact that an increase of flood at high-water means, practically speaking, the rising, damming, and tailing back of the river above tide-mark; and this rising and tailing back not only drowns the lands above, but, when the tide begins to ebb, this increase of pressure also affects the scour in the channel, as the tidal waters recede to the ocean before it. Of course, if the river, towards its mouth, increases in breadth, as it generally does, the pressure of fresh water will decrease as it expands on either side, so as almost to be nil, or next to nil, at low-water mark; and with the decrease of pressure, the scouring effect will also be reduced.

When the tide begins to flow, the question for consideration resolves itself into the action of two opposing forces—*sea-water versus fresh water*; and as the latter force has been increased, during heavy storms, by the more effective and rapid drainage of the country, it follows that the tendency to carry

earthy and other matters to the sea has been increased, so as to form new land at the estuary more rapidly than before such effective drainage took place. And this increased formation of new land is not altogether confined to the estuary of such rivers; for along the tidal banks or shores of the same there is a tendency to deposit and throw up heavy matter at the sides, more especially at places where the width of the river increases, and at bends and places where the velocity is also affected. When the salt-water and fresh-water forces meet in the bed of the river, a great commotion is experienced, attended with a peculiar rushing noise, that of the large rivers of South America being louder than the highest peals of thunder. As the ebbing tide retreats, the battle is in favour of fresh water; but when the tide begins to flow, Old Ocean summons his forces from the rear to the van, and foot to foot, as it were, reconquers, beating his antagonist back to his inland position, every inch of ground, during the flowing tide, being thus fiercely contested by the two forces, and so on.

There is a considerable difference between the effects produced in the bed of the river during the ebbing tide and that produced during the flowing tide. Experience has taught those living in the immediate vicinity of tidal rivers to form a near approximation of what is taking place during a heavy flood from what they see; but although we ourselves were at one time for several years an interested eye-witness to tidal phenomena of this kind, yet so diversified are the details, that it is hardly possible to give a practical description of them. Indeed, to be practically understood they must be seen many times in all the diversity of their details, such being always less or more effected by the nature of the tides, state of the ocean; point from which the wind blows, &c. We may, however, draw the attention of those of our readers who have had no such experience to one or two things which they will readily perceive. Thus, the greatest scour and conveyance of matter to the ocean is during the ebbing tide. The flowing tide returns this matter, so as to form new land, shoals, &c. It also has in many places, when much commotion is experienced, a greater tendency to loosen the bottom, but in other places to consolidate it from the greater pressure. It is, however, during the short time at high-water, when there is neither a perceptible ebb nor flow, that the principal deposit on the shores and in the bed of the river takes place, a thin layer of mud or sand being left on the shores of broad parts of the river, or at its estuary, at every ebb-tide. Heavy gravel and stones may be left in the bed during the ebbing of the tide at broad places, and if the river flows straight in and out of these broad places, the tendency will be to deposit heavy materials of this kind, so as to form shoals in the middle. But if the river bends, the ebbing and flowing forces have both a tendency to throw the deposit into the elbow, and thus turn the channel nearer to the other side, thereby reducing its width, to a mean of that above and below. In cases where the deposit is fine sand, it dries in the summer sun, and is drifted by the wind. Hence the hills of sand at the estuary of many rivers and also along their course when broad places have been filled up as above indicated. In the one case large fields of gravel or gravelly shoals are formed at a level rather below the highest tide, and in the other drifted sand-hills rise up considerably above the highest flood-tide.

On most of the large tidal rivers of the kingdom, as the Thames, the lands adjacent, that used to be covered by every spring-tide and high flood-tide, have been reclaimed by embankments. These embankments have been formed with more regard to the reclaiming of the land than the formation of a proper channel to the river, little or no regard having been paid to the required width of the stream. Hence between London and Gravesend the channel is made up of an unbroken series of broad and narrow places, so that between the embankments much new land has been formed, the surface level of which is much above that of the land reclaimed (*i. e.* the marshes), and in some places as high as the top of the embankment. In this way the broad places of the river, when the embankments were formed, are now narrower than they then were, while several of the narrow places have been washed wider. Consequently, in accordance with the preceding data, the breadth of the bed of the Thames below the capital is annually becoming more and more uniform with the requirements of the current of the river, and the same data will be found to apply to tidal rivers generally.

In greatly meandering tidal rivers the bends are often the narrowest, but the deepest parts of the bed, so that unless protected there is a tendency to cut into the elbow, or concave, side of the channel, and to leave deposit on the other. In this manner the length of the channel may be increased, and, in point of fact, has been, and is being, increased in numerous examples, the concave or left embankment having been in some cases cut through. Generally, however, embankments at such bends are protected either by the roots of trees, stakes, or stones.

2 and 3. Much of what has been said above applies to tidal tributaries, and will readily be understood without the repetition of such data. It is otherwise with the phenomena that take place at the confluence of the tributary with the parent stream.

When the two streams are equal in volume and tidal length and breadth of channel, the velocities and forces will be equal, and as they are subject to the laws of the resolution of forces, the united stream will have a tendency to flow in the direction of the diagonal of the two forces, the sides of the parallelogram of forces in this case being equal (*i. e.*, a square). And the same will be true of unequal forces when the tributary is less than the parent stream, the sides of the parallelogram of forces being then unequal.

In the majority of examples, tributaries flow into parent streams at creeks, broad places, bends, and so on; consequently each example is subject to its own peculiar rule. But, properly speaking, much in every case will depend upon the angle at which the two streams unite; upon the direction of the united stream immediately below their confluence; and upon the width and nature of the bed of the river, as to whether it is composed of rock, gravel, sand, or clay. Generally broad creeks are filled up by deposit, either of mud or gravel, sometimes both, and not unfrequently with less or more change of channel.

Now, the special question under consideration is the peculiar effects produced by the more rapid drainage of land-floods and the battling of the ebbing and flowing tides with the same; and, in this respect, the difference is perhaps more severely felt in tributary streams than in parent rivers, other things, as the normal velocity and force of the current, being equal. Indeed, a great many tributaries have proved themselves wholly unequal to the task of rapid drainage, their embankments requiring to be increased in height, not a few examples requiring their embankments to be placed farther apart—others, the strengthening and deepening of the channel. Now, in all such examples the effects produced upon the bed of the parent stream by inland floods and tidal action are greater than they were prior to the improvements in modern drainage; while, in some cases, they differ in other respects, as to the deposit of mud, gravel, and sand, and change of the bed of the river—each of these examples being subject to its own peculiar exigencies, suit all to the natural laws involved.

4. The removal of town sewage from tidal rivers will do much to obviate deposit of an objectionable and polluting character. For a time, after the sewage has been diverted, and applied to the land, the increased effects of inland floods, and action of steamboats, and river navigation generally, will stir up much of the old half-rotten and rotting deposit on both banks, and even in the mid-channel of the river, and thus float it down to broad places and the ocean; but eventually the increased scour of the river and decrease of sewage thrown into the channel will cleanse it, purifying the water, and thus rendering it fit for the breeding of fish. The washing of animal and vegetable life from pasture lands, in the form of seeds and insects, will not be against fish, but the contrary in the majority of cases. The increase of sand and gravel brought down by inland streams into tidal rivers will also have a tendency to improve their channels for feeding and breeding grounds for salmon and the better sorts of fish. Under this head therefore, when the whole of the sewage of towns is removed and applied to the land, a very great improvement will be effected both in the bed of the river and in the purification of its water for fishing purposes, both tidal and inland rivers.

5. But to the last proposition (4) there is a *per contra* of a two-fold character about which less can be said in favour of either plan. The first of these two plans is to carry the sewage of towns on tidal rivers down to some part where the flowing tide will not bring it back again: the discharge of the

sewage of the northern half of the metropolis at Barking Creek is an example of this kind. And, *second*, the proposition of filtering the sewage, and allowing the pure water only to flow into the river, of which there are two plans in operation, or rather being tried, on tributaries of the Thames in the suburbs of the capital.

The improved landward and street drainage of towns is throwing annually thousands of tons of more sand and gravel into rivers than was the case under the old cesspool system; and when the floods of large areas of landward and street drainage are thrown into rivers, as at Barking Creek, and that too only during every ebb-tide, the system thus practised is that of an ebb-tide flood twice every day all the year over, and something worse when these are accompanied with land floods. On the injurious effects thus produced we shall not comment, much less expose the fallacious arguments by which

the Board of Works and its engineering patrons have advocated such a plan; suffice it to say that the whole of the sewage on both sides of the Thames must be sent further and further inland and applied to the land.

It is too soon yet to pronounce an opinion on any of the various plans now before the public for throwing down soluble matter, and then filtering off the water, for being thrown back into rivers in a pure state, and even for being used for certain useful purposes, and the utilizing of the solid portion of the sewage in the form of manure. As the reader is doubtless aware, a great many plans of this kind have already fallen to the ground. But their abortion is no valid argument against other schemes now under trial for the first time on a large or working scale. In all such cases the more prudent course is to leave new schemes in the hands of Practice, whose judgment will be pronounced in due course of time. SURVEYOR.

## HOW FAR SMALL FARMS AND LONG LEASES CONDUCE TO THE ADVANCEMENT OF AGRICULTURE.

A meeting of the members of the Newbury Farmers' Club was lately held, Mr. T. Tanner (of Welford) presiding.

The following paper was read by Mr. F. H. EVERETT: I will state what I consider to be a small farm, and what I mean by a long lease. Any extent of land between fifty and two hundred and fifty acres inclusive, I think, may be called a small farm. With respect to the second part of my subject, I do not consider any term under sixteen years to amount to a long lease. In this district the usual rotation is the four-course. Sixteen years would, therefore, allow of four clear courses of cropping over the whole farm—a sufficient time for the ordinary expenditure of a tenant to be repaid. But when what are called “permanent improvements” are undertaken by the tenant, such as draining or chalking, the above period should be extended to twenty years. If the rotation pursued be the five-course with two years ley, or the six-course with three years ley, cropping, which is common with some of the very best of farmers—the men of Aberdeenshire—the term should be proportionately lengthened. There is only one other word that can need any explanation, and that is the word “agriculture.” I do not associate with the idea of agriculture any individual interest either of landlord, tenant, or labourer. It is possible to speak of agriculture, forgetting for a time that we ourselves are farmers, forgetting the immediate interests of the owners of land, and likewise those of the labourer. Agriculture may assume a national interest, as well as embrace the interests of individuals. I have used the word agriculture, then, in its widest, fullest sense. I am very anxious to be understood rightly on this point. We have always endeavoured to avoid as much as possible discussing the many subjects which have come before us in anything like a personal manner or in a party spirit; and on the observances of this rule depends, in no small degree, the success of every farmers' club. There is no question affecting the interests of agriculture—not even that of the game laws—the most likely of all to create ill-feeling, which may not be discussed and worn threadbare, if we consider the subject nationally, collectively, apart from self. And by this mode of procedure our discussions will lose none of their point, or any influence they are justly entitled to. A paper by Mr. Wren Hoskyns was read before the Midland Farmers' Club at Birmingham—“The Land Laws of England, in their Influence on Agriculture.” I need make no apology for bringing before your notice this paper; for it first suggested to me the subject of my own paper, and first supplied some of those fundamental principles upon which our agricultural system rests, and without the endeavour to master which its every-day present aspect must always appear a maze, well calculated to puzzle, but which can never satisfy the inquirers' mind. The paper, too, to which I refer, appears to emanate from a mind so mature, so experienced, and so well acquainted with the prejudices and trammels which retard the free progress of agricultural art, that I am sure the more constantly I allude to it, or even quote from it, the more satisfactory will you consider my occupation of your time and attention. I must, how-

ever, explain that what is advanced by Mr. Hoskyns refers more immediately to the ownership of land than to its tenancy; but inasmuch as every tenant, under the present mode of land culture, must or ought to feel so secure in his occupation that he may fairly consider himself owner of the soil for the time being, I take it that Mr. Hoskyns's arguments apply equally to occupancy and ownership. You will find, gentlemen, that Mr. Hoskyns looks upon the accumulation of land into large estates as a great evil. He says, “The larger the estate, the greater becomes the inevitable inducement for making large farms. The expense of a multiplicity of homesteads, with the requisite outbuildings, is by the resort to large farms greatly reduced; and a kind of wholesale economy is obtained by the use of implements which reduce the expense of cultivation and conversion at every stage to their most economical rate. To one who can look back eight-and-twenty years to the first implement exhibition of the Royal Agricultural Society of England at Oxford, it is most striking to observe how invention and manufacture have been stimulated to follow the track of enlarged holdings, and the extensive scale of farming that has grown up in this country. Whatever the demand there will always be a supply, and the magnitude as well as perfection of our farm implements and machinery have become the wonder of Europe.” “All this,” he says, “has helped to disguise a growing fact of deep significance to the community; while to many persons it has come to appear as if agriculture will have reached its perfection, its golden age, when the whole country consists of large tenant-held farms under large landowners. But there is also a considerable class of thinkers, including amongst them almost every distinguished writer on political economy (the science of the distribution of national wealth), from Adam Smith to our own time, who are of opinion that God made the earth for all and not for a few, and who hold that the true question is not how the land can be cultivated on the largest scale at the most economical rate, but how it can be made to produce the greatest returns by the profitable employment of the greatest number. In these last words are contained for us the chief interest of the question we propose to discuss. This is the point on which we shall as it were divide. I am perfectly aware how much there is to be said in favour of large farms, the extended use of machinery, and the convenience to landed proprietors of portioning out of estates in large holdings, with a reduction in the number of homesteads—so much the better for our discussion—and seeing as I do several large occupiers present, I am also aware that a strong attack may be made upon the position I have taken up. But carry out this system of large holdings to its utmost limits, and we arrive at starvation for the labourer; at any rate there could be no support for an abundant labouring population, but to this point I propose presently to refer. It may be sufficient for agricultural producers to inquire, in the first place, what kind of agricultural produce is most in demand at the present time, and the demand for which is most likely to continue? Also on what farms such produce acre so



acre is most abundantly produced? Is it corn with which the English market is not sufficiently supplied, which undoubtedly it is most desirable should be grown on a large scale over wide and extensive tracts of open country? Is it not rather beef and mutton which we require in more abundance—necessitating in its production constant care, vigilance, and personal superintendence, possibly only when the area farmed is of limited extent, under the immediate supervision of the tenant of the land. Whence come milk, butter, eggs, poultry—the demand for which the English supply certainly does not meet? For the most part not from the steam-ploughed open fields of our larger farms, but from the smaller tenancies still much enclosed, sheltered by timber and hedgerows, and held by men, in some instances, not of the largest capital, but renowned for surpassing industry, care, and thrift. I am one of those who consider that there is room in England yet for such men. What says Mr. Hoskyns on this point?—"The much greater quantity of small products, such as eggs, butter, milk, cheese, honey, vegetables, fruit, &c., which are obtained from a given quantity of land cultivated by the smaller class of proprietors formed quite a characteristic feature of the ancient agricultural system of England. These have almost disappeared with the modern system. The importation of foreign eggs in the last year amounted to the prodigious number of nearly 500 millions. The value at the English market price paid to the foreigner for this one element of neglected home produce is from one-and-a-half to two millions sterling." That Mr. Hoskyns here refers more especially to the small owner (but he also includes the mere cultivator) of by-gone days, who cultivated for the most part with the spade, does not alter the position of the matter we are discussing, if the whole bearing of the question be impartially and fairly considered. This too is but one out of the many strong arguments he uses against overgrown estates with the increase of large holdings. What matters it should this be considered the weakest?—it is sufficiently powerful. Can we, the agriculturists of England, afford carelessly to consign to the foreigner nearly two millions sterling, though it be for the trifle "eggs"—I think not. I agree with that oft-repeated assertion made by all, that the profits of farming depend on small gains. Caird is universally considered a high authority on agricultural matters. In 1850, a time of low prices and agricultural depression, an inquiry was originated by the *Times* into the general state of agriculture. Caird was appointed to undertake the investigations, the results of which are embodied in his work on "English Agriculture;" the matter contained in his letter, he tells us, was obtained "by personal inquiry and inspection, principally by walking or riding carefully over individual farms in different districts of each county, accompanied by the farmers; by traversing estates with the landlord or his agent, and by seeking access to the best and most trustworthy sources of local information." We cannot, therefore, regard his information as theoretical. I should say it must be eminently practical and reliable. Having, then, traversed 32 of the 40 counties in England, he sums up the result of his labours. In the conclusion of his work he says he found in the eastern counties low rent, yet discontentment; large farms, averaging 430 acres, and the main reliance placed on corn. In the western and midland counties, rent 30 per cent. higher, yet comparative contentment; farms small, averaging 220 acres, and the staple products butter, cheese, sheep, and cattle. Corn was selling at the same price as it was eighty years before; while dairy produce, meat, and wool have nearly doubled in value. Gentlemen, no thoughtful man can pass over these facts heedlessly; the care with which they were collected, and the authority on which they rest, demand at least our best attention. Allow me to detail some statistics given by Caird; they bear intimately on our subject, and are extremely interesting:

In twenty-sixth counties the average rent of arable land, in 1770, appears from Young's return to have been, per acre	... ..	13s. 4d.
For the same counties Caird's returns in 1850-51 give an average of	... ..	26s. 10d.

Increase of rent in 80 years ... .. 13s. 6d.  
or 100 per cent.

In 1770 the average produce of wheat, in bushels per acre, was	... ..	23
In 1850-51, in the same counties, it was	... ..	26½
Increase of produce of wheat per acre	... ..	3½
		or 15 per cent.

In 1770 the labourers' wages per week averaged	... ..	7s. 3d.
In 1850-51, in the same counties, they averaged	... ..	9s. 7d.

Increase in wages of agricultural labourers 2s. 4d.  
or 3½ per cent.

In 1770 the price of provisions was: Bread 1½d., butter 6½d., and meat 3½d. per pound; in 1850-51 it was—bread 1½d., butter 1s., and meat 5d. per pound. In 1770 the price of wool was 5½d. per pound; in 1850-51 it was 1s. per pound. In 1770 the rent of labourers' cottages in sixteen counties averaged 36s. a-year; in 1850-51, in the same counties, 74s. 6d. a-year. "It thus appears," says Caird, "that, in a period of 80 years, the average rent of arable land has risen 100 per cent.; the average produce of wheat per acre has increased 15 per cent.; the labourers' wages 3½ per cent., and his cottage rent 100 per cent.; while the price of bread, the great staple of the food of the English labourer, is about the same as it was in 1770. The price of butter has increased 100 per cent., meat above 70 per cent., and wool upwards of 100 per cent. The contrast would, of course, be far greater if 1770 were compared with 1868 instead of 1850-51, and there is no avoiding the conclusion that the kind of farm-produce which has increased most in value is that raised with the greater facilities on small farms." Caird says, later on in the same chapter from which I have extracted the above statistics, that the gradual diminution of the largest farms is inevitable, and the capital and attention of the farmer will be concentrated on a smaller space. Notwithstanding what has been stated, I am prepared for the objection that all the valuable produce named may be raised on large farms as well as on small. Of this I am aware; but not, I think, in anything like an equal proportion acre for acre. Moreover, it is not my object to compare farming on a large scale with farming on a small scale, further than is necessary for the illustration of the subject before us. It is impossible, however, to see how far small farms conduce to the general advancement of agriculture, without ascertaining whether the supplies afforded by them meet the general demand of our country. And it would seem natural that that division of our lands will eventually prevail which promotes the production most fully calculated to meet such demand. We are aware that large holdings of late years, both with land-owners and land-occupiers, have been the most popular, and for the very sufficient reason of supposed economy. But is our whole system of agriculture in such a satisfactory state that there is no reason for supposing that the experiment has been carried too far? Greater concentration of capital, more abundant employment of labour, with more perfect tillage, would alleviate many of the evils and difficulties with which agriculture has at the present time to contend. Such conditions follow more naturally in the track of farming on the smaller scale. "It is beyond contradiction," says Mr. Cliffe Leslie (in a recent article in "Fraser"), "that the products best suited to the soil and climate of England are those which small farming produces best." "The farm produce for which England is best suited, requires," Mr. Caird states, "an immensity of labour." "English agriculture," says Mr. Thornton, "would be exceedingly benefited by the application to it of at least double the actual quantity of labour." "And England is fitted by nature to support an immense rural population in comfort," says Mr. Wren Hoskyns. "An immense rural population in comfort!" This brings me to a point to which I said I would again refer. One great obligation that agriculture is placed under is that of the full employment of the agricultural poor; and its true interest is in the greatest degree secured by the thriving state, happiness, and contentment of this class. The sweeping away of cottages, and the driving away the labourer from the place of his birth and objects of home interest, have produced happiness, contentment, and prosperity for no class. It is an experiment which bitter and costly experience has shown to have failed utterly. New cottages are now the incessant cry; and the force of circumstances has proved that there is room in all our rural districts for all who are in-

terested in the cultivation of the soil. All members of the agricultural body seem to be equally interested now in studying the surface of our rural district with "homes" for the labourer, and the burden should be borne in due proportion by all; for I hold that no one class was entirely responsible when these "homes" were swept away. The occupier must, I think, have been a consenting party, directly or indirectly; at any rate, we never hear that his voice was raised in opposition. Hailing, then, as we do this reformation in the matter of cottage-building with extreme satisfaction, the point which I think we ought to consider is this—What is to happen when the inhabitants of all these cottages have greatly multiplied? Will there, or will there not, under the present system of farm management, be found employment for the children on the farms where we, the employers of labour, have sought eagerly for the service of the parents? He is a bold man who is prepared to allow each youth just as he has formed some attachment for those with whom he has been associated to pass on and become another's hireling. I believe there is good reason for thinking that a greater proportion of small farms, with the system they entail, would be more likely to absorb surplus labour than the larger allotments of land requiring in their management fewer hands per acre. Emigration naturally suggests itself. It has, I know, been looked upon as a panacea for all agricultural ills. But it is a pleasing salve only. I am not disposed to regard favourably the tap which draws off all our strength and vigour, and offers for the acceptance of the mother country the mere refuse. I do not pretend to say that small farms can fully meet the difficulties

by which we are beset in this matter, but they alleviate great pressure. Perhaps it is left for succeeding generations to solve the problem. What is to be the destiny of the farm labourer? It is strange, however, that what seems to be the chief corner-stone of our position should not have been jealously guarded. If the mortar in which it was originally set was good, at any rate it has begun to moulder. If it was ill-tempered from the beginning, it is time it were laid afresh. I believe, then, all are interested in the maintenance of a due proportion of small farms—the landlord, because the rent of small farms is proportionally high; the farmer, because they tend fully to develop the resources of his art in certain of its branches; the labourer, because upon them he will find one of the best markets for his labour; our whole country at large, because to small farms we must look for the more abundant supply of those products which foreign nations are unable to export. But I do not at all wish to be understood as implying that the extinction of large farms is in any way desirable. It is surely a wise and satisfactory conclusion that Stuart Mill comes to, after discussing "Production on a large scale and on a small." "The only question which remains open," he says, "is one of degree—the comparative rapidity of agricultural improvement under the two systems; and it is the general opinion of those who are equally well acquainted with both, that improvement is greatest under a due admixture between them."

A short discussion ensued. Most of the speakers concurred with the views of Mr. Everett, though one or two dissented.

## CHEMICAL MANURES.

[TRANSLATED FROM THE FRENCH.]

Of all questions now under consideration the one possessing most interest to the agricultural world is that of manures. How can it be otherwise in our country of ancient civilization, in which the earth is exhausted by a cultivation of twenty centuries, and where the population is locked up in a comparatively narrow space, a population which in spite of a period of check, owing to multiplied causes, has a constant tendency to increase?

For a long time no other manure was known than stable-dung or night-soil, and even the latter was not freely used by all farmers.

Then came the guanos, of which England particularly used great quantities.

But notwithstanding, all is exhausted, dung, night-soil, and guanos are insufficient, and necessity aided by science led to the manufacture of composts and all the manures now known to the commercial world.

In the meantime, chemistry, which in the last half-century has made such marvellous progress in its turn, took up the question, and introduced a new element. Baron Liebig in Germany, and M. George Ville in France, acting upon that principle now admitted by all the world, that it is necessary to restore to the land those elements that have been taken from it by plants, and that each plant has different wants, gave to the world chemical manures.

The doctrines of Baron Just Liebig created great excitement on their appearance, and were actively combated. M. George Ville, Professor of Vegetable Philosophy at the Museum of Natural History at Paris, renewed the discussion, and echoed his theories. He held conferences at Sorbonne and Vincennes, and published books upon the subject. The *Moniteur* became the organ of the new doctrine; experiments were made, contradictory assertions appeared in the columns of the agricultural press; in fact, nothing was needed for the success of the new science except long and universal practice, against which so many promising theories fall to the ground.

It cannot be denied that chemical manures have strong partizans and ardent adversaries. In our next number of *L'Echo Agricole* we purpose publishing two letters, one in favour of, and the other opposed to that theory. At present we intend showing, through the pen of one of our most noted

contemporaries, the principles upon which the theory of M. Ville rests.

M. Leconteux thus expresses himself in the *Journal d'Agriculture Pratique*: M. George Ville has published a book which may be considered as an epitome of his doctrine. In page 18, we read: "For the last twenty years it has been thought that dung was the agent *par excellence* of fertility. We maintain that that idea is altogether wrong, and that it is possible to compose artificial manures, superior and even more economical than dung. Again, it has even been said the meadow is necessarily the starting point of all good agriculture, because with the pasture we get cattle, and with the latter dung. Now we believe these pretended axioms to be true heresies, and I hope to show you that in the present state, all agricultural amelioration in order to be remunerative must take its origin in increased importation of artificial manure. The production of dung has irretrievably lost its character of necessity imposed to culture: it is now only a question of convenience and of price of return."

In another place M. Ville adopting the theories of M. Liebig and other celebrated chemists of our time, says that the agriculturist who employs dung, and nothing but dung, exhausts his land, because the farmer by that alone which the heart of the land supplies could not possibly repair the loss of phosphate of lime, potash, lime, and azoteous matters that the farm has lost by the exportation of part of the crops. When he exports meat the loss is less than when he exports grain, but it is not the less real. I repeat, then, that this axiom which has hitherto been made the foundation and almost the palladium of agricultural art, is in reality a true heresy. It is only reasonable in a very exceptional case, where the meadow is watered by a muddy stream, which gives to the soil an equivalent for what it has lost in fertilizing agents, but such a case as I have before said is too rare to make it a rule.

"I said," continues M. Ville, "that culture founded solely upon the use of dung, is also an economical heresy. Let us suppose the case of an ordinary land yielding at the rate of from 8 to 10 hectolitres of wheat per hectare, and then calculate how long it would take to make it produce 25 to 30 with dung, and the result would astonish and alarm you."

With chemical manures the change is immediate, the production sudden, and the benefit also immediate. Now if we remember that, besides the benefit, we increase the resources in straw from the first year, is it not evident that instead of first making the meat that we may have the corn, *there is a manifest advantage in reversing the order of things, hitherto extolled, by taking the benefit of the wheat first, then the straw, and finally the dung?* I therefore repeat that land only ceases to exhaust itself when there is a real importation of manure; and the solution which forces itself upon us is, that the fertility of a soil must be increased by means of manure composed artificially, with products existing naturally in a mineral state, and which appear to us to have been reserved for the purpose of repairing the depredations of the present as well as the past, and for preserving us from future disasters.

"It is not then correct to say that dung, and nothing but dung, is sufficient for everything; but it is true that, in order to obtain abundant crops without delay, the only way is, to have recourse to importation of artificial and chemical manures in preference to all others, because they alone from their nature are always rigorous, definite, and identical to themselves, consequently you cannot be deceived in them, and therefore they are to my mind the most economical.

"Let us try to bring to their real value the products whose qualities are so loudly extolled by certain manure merchants, and we shall find them injured by a mixture that the most scandalous usury has ever reached.

"Now that the first elements of fertility are known to us, it can no longer be a question of absolute rules, imposed upon us under the name of a tradition which relates to an economical state different from ours. Now we govern the requirements of culture, instead of being governed by it.

"I can only repeat what I said in another enclosure to the Sorbonne.

"Agriculturists are no longer under the necessity of producing their own manure; they can make themselves the producers, if, taking all things into account, they find it to their advantage; but if it is manifestly more profitable to have recourse to chemical manures, there is nothing to hinder them: it is no longer a question of good culture, but of return prices."

Thus the system is clearly characterised. M. Ville does not maintain the anti-economical thesis that agriculture should everywhere and under all circumstances give the preference to chemical manures instead of dung; but what he asserts, and this is of vast importance, is, that chemical manures, whether used alone, or in conjunction with dung, will keep up, and even increase the aptitude of the soil to produce the heaviest crops, and that consequently agriculture, freed from the obligation of producing dung at any cost, will from henceforth only have to compare the value of dung and chemical manures before making its choice. I would dwell upon that point, because in the discussions of these latter days it has been kept in the back-ground.

There is another point in the doctrines of M. Ville, which I think is calculated to impress the agricultural world. He regards manure only as a substance deposited in the soil, with a view to its being transformed into a crop very nearly proportionate. It is, therefore, not astonishing that with such ideas M. Ville thinks nothing of the physical action of manure upon the soil, a point to which the partisans of the humus theory attach so much importance. He looks upon manure as the raw material of crops, and nothing more. The partisans of dung, on the contrary, say it is not merely the raw material of crops, but in proportion to its mass and duration in the arable bed, it modifies the physical properties of the soil—that is to say, it is an improving manure. Looking at it in that light, therefore, he does not think that agriculture, controlled as it is, for the want of consuming its straw on the spot, or of varying its crops and speculations, should completely renounce the use of dung, as a means of modifying the physical nature of soils destitute of organic matter.

M. Ville, fully recognising the influence of economic circumstances in such a question, does not, however, seem inclined to admit the necessity for dung, in so far as regards amendment. In page 57 of his work, we find an account of the following experiments:

"Upon a land in Champagne, brought into cultivation for the first time, with 80,000 kilos. of dung per hectare, they obtained 13 hectolitres of wheat; then, with the complete

manure, the yield rose to 33 hectolitres. Upon a hectare of siliceous land in the department of Aisne, with 40,000 kilos. of dung, they obtained 8 hectolitres of wheat; with the chemical manure, 28; the same land, without any manure, produced only 2 hectolitres 56. In the department of Drôme, upon a stony hill, cleared for the purpose, the land, without manure, yielded 3 hectolitres per hectare; with 39,000 kil. of dung, it gave 8 hectolitres; and with the complete manure, the yield was 30 hectolitres.

"M. Payen, in the department of Aisne, M. de Matharel, in the department of Oise, and Chevalier Mussa, in Italy, obtained similar results. On lands chosen from amongst the most sterile, which, with the largest dose of dung, only produced from 8 to 10 hectolitres, the chemical manure brought the return up to from 25 to 30 hectolitres.

"Now, if we consider that in these experiments, where the land was of a very inferior quality, dung, which contains matter analogous to humus, produced much less effect than the complete manure, it must be manifest that we may dispense with humus, and obtain very fine crops without it."

Such, then, according to M. Ville, are chemical manures. They have the admirable faculties of converting at once, without transition, and as by enchantment, an almost barren soil into one producing crops of the largest returns. It is only a question of money, not time.

In page sixty-seven of his book, M. Ville writes upon this subject: "The source of profit in agriculture depends particularly on the abundance of manures; and, unfortunately, when the farmer has to produce his own dung, he cannot make it as he chooses. In order to change the position of a culture (based upon dung), much time is necessary, as well as discernment and prudence, because everything is stationary on a farm where the production of cereals and dung is put foremost.

"With chemical manures, on the contrary, culture acquires a liberty of action almost absolute. The farmer regulates the dose of his manures at will. The initiative is only limited by the amount of capital he has at his disposal.

"By means of chemical manures, we can, in a manner, from the evening to the next day, convert a precarious cultivation into the most intensive system, and consequently obtain, instead of a small profit, a high remuneration."

These words, written, as they are, after a series of long and numerous experiments on a large scale of culture, are well worthy of our careful consideration. If they are well founded, it is certain that even in the poorest lands, containing scarcely any humus, chemical manures are capable of producing the highest fertility, complete in every part. Henceforth there will be no more dilatoriness—none of those enormous expenses entailed upon agriculture by cattle, no more expensive constructions, no more capitals sunk for a long period. Agriculture will liberate its capital; it will engage, and disengage its manure capital, so to speak, year by year. In that respect, it will be a trade of investments for a limited time. What a revolution!

Let us look at the maize region. There is nothing in it certainly from which, on condition of its being sustained by sufficient manure, is obtained so much alimentary matter for man as that which results from the famous biennial rotation—wheat and maize. But, then, what difficulty there is in sustaining that exhausting rotation by dung alone! what obstacles there are in the dry lands of the south to the adoption of a husbandry based upon a heavy forage produce! What a strange problem to solve! The land has more aptitude for producing cereals than forage plants; and it is by the latter that agriculture, with a basis of dung, expects to produce cereals!

On the other hand, look at those immense tracts of uncultivated land—the Steppes, which are in the centre of civilization. How slowly they advance to the production of fodder. They know the difficulties of the work they have undertaken, which proceed from clearing the lands; but the latter, however, particularly since the introduction of fossil phosphates, have been able to appreciate mineral manures better than the others.

Then, again, look at our lands which yield from 8 to 15 hectolitres of wheat per hectare. Some years the farmers wear the flesh off their bones trying to make progress with dung, and these men have learned to their cost that agriculture with dung alone is, and can only be a tedious enterprise.

If, then, the theory of chemical manures does result in the consequences stated by M. Ville; if it produces maximum crops upon lands previously barren; if it tends to the adoption of a system of culture producing forage by cereals and industrial plants, instead of getting cereals by industrial plants and forage, as the greatest authorities have recommended; if all this be true, it must produce an immense revolution in agriculture: the greatest which has ever been known is on the eve of being begun, and our duty is to give it our best wishes.

It must not, however, be thought that M. Ville denies the influence that order of succession of crops must exercise over the management and rotation of manures. Besides the formula that he points out for each plant considered separately, there are the much more significant formulae that he gives for plants looked at in their order of succession. With the highest scientific authorities he recognises the fact that, amongst the substances that serve for the raw material derived from manure, each plant has a predilection for one particular substance which it is necessary for it to have in large quantities—a substance called in consequence the “dominant.” Thus, according to M. Ville, azoteous matter is the dominant of wheat, colza, and beetroot; that of leguminous plants is potash; and phosphate of lime of turnips.

According to this theory, minerals without azote give higher yields with lucerne, clover, beans, and peas, which draw their azote from the air, while minerals containing a small quantity of azote are suitable for flax and potatoes. It is evident that in distributing manure to plants great care should be taken to select the substances that serve for their dominant. Further, it is necessary to take into account the portion of the loss of manure resulting from the solvent action of the subterranean or superficial waters, as well as that by aerial evaporation.

Now, it was taking all these conditions into consideration, that M. Ville recommended the rotation of the following manures for a quadrennial succession of crops in this order:

	PER HECTARE.		
	Weight	Price.	Expenses.
	Kilos.	Francs.	Fr. Ct.
1ST YEAR, BEETROOT.			
Superphosphate of lime .....	300	64	334 00
Nitrate of potash.....	200	124	
Nitrate of soda .....	400	140	
Sulphate of lime .....	200	6	
2ND YEAR, WHEAT.			
Sulphate of ammonia .....	300	120	120 00
3RD YEAR, CLOVER.			
Superphosphate of lime .....	400	64	196 00
Nitrate of potash.....	200	124	
Sulphate of lime .....	400	8	
4TH YEAR, WHEAT.			
Sulphate of ammonia .....	300	120	120 00
Total expenses .....			750 00
Expenses per year .....			192 50

If chemical manures are used in conjunction with dung, M. Ville advises to consider the latter as a basis of fertility acquired by the soil, and to limit the chemical manure to one-fourth of the manure most suitable to and approved of by the culture of the year. In other words, he only recommends applying the dominant.

Having explained the doctrine of M. Ville in the most forcible manner, it now only remains for me to say what I think of it as an agriculturist.

I dislike exaggerations, and it is therefore sufficient to say that I have no fear of the future proscription of farm dung. M. Ville himself has stated the question perfectly in his book, which served as a basis for my appreciation of his theory. Dung will always be an important agent of the fertilization of our lands, for the simple reason that in cereals and other crops there is straw and residue that the farmer must consume on the premises as manure; besides which, agriculture requires animals for work as well as stock, more or less. Be-

sides, chemical manures may be applied with as much success to forage and roots as to cereals and industrial plants.

Then, the question of the choice of culture remains, as it always did, subordinate to local circumstances; but with this difference, that agriculture gains in the chemical manures fresh helps, enabling it to progress quicker and more economically.

No one can deny that large profits of agriculture in our time must be gained by substituting maxima crops for average yields, because that result must be obtained with no other expense than supplementary manure. If with our dung alone we harvest 20 hectos. of wheat per hectare, we must endeavour by the addition of chemical manures to obtain at least 30 hectos., because these ten supplementary hectolitres more than repay the price of the manure, the latter being evidently less than the price of 10 hectos. of wheat, besides the straw. Make your calculation; separate a full crop into two parts; reckon the cost of the first 20 hectos., including the expense of labour, dung, rent, taxes, and seed; and then calculate the remaining 10 hectos., charging only the expense of the supplementary manure. By this simple comparison you will see at once the evil and the remedy of our agricultural situation. I have often tested this fact, and feel it my duty as a writer never to miss an opportunity of submitting it to the attention of my readers.

But it is necessary to tell the whole truth. In spite of the magnificent results quoted by M. Ville in favour of chemical manure, on certain poor lands, I cannot agree with the notion that dung is not a necessity of the first order for the amelioration of the physical properties of these lands. I know some silicious lands which the largest quantity of chemical manure would not affect, as long as the lands are burnt, and become, under the influence of the summer drought, impenetrable to atmospheric agents. All then is inactive; the manure is imprisoned; vegetation suspended, or else compromised. Besides, in clay lands there are instances where fertilizing matter, instead of transforming itself into the crops, remains fixed in the soil itself. Now experience proves that the use of dung in doses applied often corrects that state of things, so that we may safely say in such a case dung is an *improving manure*. I have already pointed out, in this article, that double agricultural property of dung. I shall not return to that point, in order to avoid being classed amongst the ultras who, suddenly adopting new ideas, disregard what they owe to the former object of their worship. Dung modifies the physical properties of the soil: looking at it only as a manure is depriving it of one of its best titles to the attention of ameliorating culture.

What shall I say more? M. Ville proposes reversing the terms of the old agricultural problem. Formerly it was said that we must get at the cereals by the forage; now, he does not hesitate to declare that we must take the very reverse of that theory, or, in other words, get fodder through the cereals.

I acknowledge we need to think well over such a declaration of principles. It would be an evil to apply his doctrine of manures so as to make it a doctrine of exhaustion; whilst in the mind of its promoter it is a guarantee of the amelioration of the soil. I by no means maintain that it is the last word of science. I simply say that in its present state it is already supported by a sufficient number of facts, obtained with the concurrence of practitioners worthy to be believed, to merit its being submitted by agriculturists to fresh and more numerous experiments. In a word, I shall always believe in the power of dung; but at the same time I believe for the future we must look to chemical manures as a means of increasing our crops, diminishing the price of returns, quickening the circulation of capital, and, in short, rendering agriculture more prompt and free in its progress. Either I am greatly deceived, or a principal economical function of chemical manures is to obtain surplus crops with no other expense of production to repay than the purchase of the chemical manures themselves. It is therefore evident that under ordinary circumstances the difference between the price of the surplus crop and the price of the additional manures must be a great benefit to agriculture. Much is said about reforms now-a-days: here is one which will at least be a good harvest for everybody.

E. LECOURTUX.

## ROOT CROPS AS A SOURCE OF IMPROVEMENT.

## ENGLISH EXPERIENCE FOR THE BENEFIT OF AMERICANS.

Carrots, mangold wurzels, swedes, and turnips will come to be the renovation of American farming, as turnips and swedes have been the salvation of English agriculture. A century back there was not more root culture in England than there is at the present day in America, and at that time farms there were run down and exhausted. It was the fine old meadows which were the main dependence of the farmers; much of the arable soil of the present day was at that time deemed too light and poor to pay for cultivation. Wheat was generally grown after a regular summer's fallow, and manured by folding the flock of sheep upon it every night from midsummer till planting time; beans, oats, and barley followed; after which a fallow was again resorted to, as couch grass, docks, and other weeds had once more gained the ascendancy. Common turnips were first grown and then the Swedish variety was introduced, and the cultivation gradually extended till the admirable effects of their consumption became so evident by the improvement of the land, and the increased wealth of those who grew the best crops of them, that the whole country became aware of the importance of the extension and better cultivation of turnips; and about half-a-century since, the Scotch had gained such an advantage in growing them, that thousands of Scotch bailiffs were employed by the landowners of England, chiefly on account of their superior management of the land for turnips and their improved system of planting the crop. This was done by ridging and drilling twenty-seven inches apart; it was then called the Scotch system, but has since become universal for swedes in England, and nearly so for all other root crops.

Since the general cultivation of the turnip crop in England, the whole system of agriculture has improved, and the land is kept in a higher state of fertility in consequence of the great increase of live stock, which, as a matter of course, augments the manure heaps; and likewise because a thorough cultivation and renovation ensues every time the turn for turnips comes round. Now as the present manner of farming in the east of America is bringing the land into about a similar state to that of England a hundred years ago, excepting that there is no established old grass land here to assist the worn-out tillage, it would be a great blessing to the country if some of our monied men in America would imitate the old English esquires and titled gentry, by giving some examples of extensive root culture for the benefit of their neighbours. But, alas! to show off the system to advantage, and make it acceptable to those who have generally a prejudice against root culture on account of the expense, they would have to obtain a good Scotch or English drill, that will distribute manure of many kinds in a regular way, so as to save the lavish application necessary when broadcasted; and it would be necessary to have a man accustomed to the cultivation on a large scale and the feeding of the crop to advantage, which would perhaps cause a faltering at the onset, for the whole bulk of manure made on the farm would be required and probably some other appliances also. The system of turnip and root husbandry is to put the soil in such a high state of productiveness at the planting of the roots, that it will grow full crops through the rotation which succeeds till roots are grown again. However, when the West has been run over, and all the virgin soil exhausted, there will come a time—and it may not be far distant—when sheer necessity will compel this last resort of wintering stock and keeping up the stamina of the land. Then, too, as a means of saving the labour of hauling so many roots into cellars, they will be covered in heaps in the field, and moveable folds will be invented, which may be removed in sections daily, by being taken apart and joined again as quickly as the open hurdle pens are moved, and they will be so constructed as to be sheltered and comfortable. Necessity is the mother of invention, and my poor mind's eye can already see a very simple and inexpensive, but thoroughly comfortable pen, which would answer the purpose and save the erection of the costly barns which are now used for sheep. The hay could be built in ricks and thatched, the same as in

England, and cut as wanted for use with a cutting-knife, without the slightest waste.

The growing of roots in America as extensively as in England would cause the same change here as there. Therefore it is in the power of any farmer with sufficient capital to farm nearly the same as in England, and if he did so he would enjoy one very decided advantage over the English, because his surplus stock could be kept till spring, when it makes so much more per pound in proportion than it does in fall, and if he grew more roots than his own stock would consume, he could buy some which would pay a great deal more for eating them than there. When the day comes that sheep are kept on the land in the way intimated, it will be a matter of great surprise that no one commenced such an extraordinarily beneficial system before, and should this article be published now, some one, years hence, on looking over their back files or volumes of the *Cultivator*, may exclaim, "I recollect reading that, and thinking what a visionary that Englishman was!" Already many are pondering on the necessity of improved culture, and the adoption of some good system whereby the land can be made more self-supporting, and the fertility kept up by increased production instead of by the purchase of foreign manure and resting or fallowing; and here is that system, for, with any common sense in a rotation in which the root crop takes its turn, the productiveness may be increased and permanently kept up, as by converting the chief portion of the produce into wool and meat, the principal portion of all abstracted from the land is returned, and the greater the crop the larger the heaps of manure; and by occasional extra stimulation to the root crop, and eating the main portion in the movable covered sheep-pen, the land will be greatly enriched. By skilful application of fertilizers, the atmosphere will feed the crop to a great extent in its latter growth, and the return to the soil of the droppings and urine of the sheep will strengthen the soil far beyond what it has been weakened by the abstraction. Then the succeeding crops will be very heavy, and if judiciously arranged in rotation, may be made to hold out full yields till the turn for a thorough cultivation and manuring comes round again. Let us suppose barley will be sown after the turnip crop, and clover, &c., sown with it, that the clover is mown the first year after and grazed the second, when it is broken up and planted half in wheat in autumn and half in corn the following spring, and the next year peas succeed the wheat and oats the corn, which will be a six-course rotation. Three hundred acres of arable land would be occupied as follows: 50 acres of roots, 50 of barley, 50 of first year's clover and other grass, 50 of second year's grass, 50 half corn and half wheat (at the next rotation, in six years' time, put wheat where the corn grew and corn where the wheat grew), 50 in peas and oats (25 acres each), which could be changed the next six years. Thus the farm would hold out in good condition through the whole course, and this would be an excellent rotation, and from experience I can state that the wheat and barley might be sold, and if the rest was consumed on the farm, the yield might be kept up to the following ratio: 1,500 bushels of corn, 1,000 of wheat, 1,000 of peas, 1,000 of oats, 2,000 of barley, and 30,000 bushels of roots, which would enable such valuable quantities of live stock to be wintered, that the spring sales of mutton and beef would be very remunerating. In short, the profits might equal the English farmer's, for though the labour is much higher here, the heavy rental and taxation of England will about make that up. Carrots stand drought much better than swedes, so that it would be prudent to grow them here in greater proportion than is done in England, and the cultivation of the land ought to be proceeded with early in the fall, that there may be little to do in the spring. The manure should also be hauled to the ground during winter.—AN ENGLISHMAN, in *American Cultivator*.

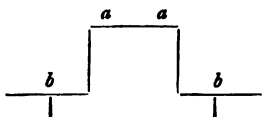
## ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

## MEETING AT LEICESTER.

## IMPLEMENT DEPARTMENT.

The novelties which were shown in the implement yard could not be said to be numerous, although many were important; but this paucity of new things need not be wondered at, if one notes the tendency of late years in agricultural engineering, which has been more in the direction of improving old and established machines rather than in that of introducing new. Be this as it may, we may proceed to glance at the leading features of the implement yard.

In connection with the saving of seed, we noticed at the stand of the Messrs. Clayton and Shuttleworth, of Lincoln, a turnip-seed and manure distributor, the invention of Mr. Gillyatt, a farmer of Lincolnshire, and which, this year at all events, had an interest thrown around it arising from the curiously abnormal weather with which we have been favoured. With farmers it has long been a disputed point whether a wet or moist seed-bed was more favourable for the turnip crop than a dry one. Opinion is pretty much divided on this point; but if ever a season was adapted to put the opinion of those who agree as to having a wet or moist seed-bed to a crucial test, this certainly has been the one. With a turnip-crop which has so universally failed that it is no crop at all, it might be useful to know what has been the result of the use of this machine. This result may probably go some way in deciding the disputed point; for the machine is one which enables the turnip-seed to be deposited in conjunction with manure in the liquid condition, and which secures the wet or moist seed-bed, which the inventor at least believes is an essential element in the securing of a good crop of turnips. The liquid-manure water and superphosphate or guano are kept in a barrel-shaped receptacle, which is hung upon a hollow axle, on the extremities of which the wheels are placed. The hollow axle is bent up in this fashion within the barrel,



and the liquid is lifted up by the rotation of the barrel—secured by appropriate mechanism connected with the driving-wheels—and, by a series of buckets with which it is provided, delivered at the highest point to two apertures, as at *a a* in the diagram, and from thence by the hollow axle carried down to the points, *b b*, at which the tubes are placed, conveying the liquid to the coulters. The seed is placed in a hopper, and is also led down by tubes to the coulters. The distance between the tubes *b b* regulates the distance between the rows, and this is capable of adjustment so as to make the intervals wider or narrower as desired, giving twenty, twenty-five, or twenty-seven inch spaces to the drills. Adjusted in the way above described the machine deposits the seed and manure in a continuous line in the drills; but by putting in connexion a simple contrivance of eccentric and connecting-rod the aperture of the coulters is closed and opened at intervals, thus dropping the seed in pockets or bunches dibble fashion.

Another seed-depositing machine for manual labour is the drop-drill which was exhibited at the stand of

Morton and Turner, of Thetford, Norfolk. The arrangement of this is at once simple and effective, and, withal, secured at a moderate cost. The hopper for containing the turnip-seed is placed at the end of a long handle, and a small wheel is connected with it on which the implement runs along the ground as it is pushed along. The bottom of the hopper is perforated, to allow the seed to pass through. But this is not continuous, but is at intervals. This intervallic movement is secured by providing a slide in front of the aperture in the bottom of the hopper, to which a to-and-fro motion is given by very simple means. To the end of the slide the end of a bell-crank lever is jointed, and the other extremity of the lever is jointed to a small rod which is bent up at the extremity, and the extreme end of which comes in contact with a series of pins placed in the face of a disc fixed to the small wheel on which the apparatus runs.

A dibbling-machine adapted to the sowing of corn was exhibited by Freer, of Rothley, Loughborough, Leicestershire, with considerable improvements. The dibbles in this machine descend the earth vertically, but they are not placed in frames which rise and fall in a right line; on the contrary, they are arranged in connection with circular discs, or rather hollow wheels, four of which are placed equidistantly on one central axle. As these discs revolve, the dibbles are pushed out through apertures in the periphery of the discs, or hollow wheels, as these reach the lowest point in their revolution—that is, when the apertures come in contact with the soil. The dibbles, or “planters” as the inventor calls them, are hollow, and are connected with the seed-hopper, from which the seed is passed down the hollows of the dibbles, as soon as those assume the vertical position. Each “planter” is provided with a piston, which exactly fills up the aperture of the “planter,” and prevents soil from entering it when at its lowest point. When the “planter” has penetrated the soil to the depth required for depositing the seed, an arm, which projects from the piston at right-angles, and passes through and along a groove made in the side of the planter, is struck, and the piston is made to descend upon the planter and allow the seed to drop into the hole in the soil. The arrangements, which are too complicated to describe here fully without the aid of diagrams, are very ingenious, and are well calculated to aid the end in view; but a dibbling machine, adapted to small as well as large occupations, and made at a moderate price, has yet to be produced. It is one of the problems of the future, and its solution may be looked forward to with some degree of interest, as there can be no doubt of this, that so far as meeting the physiological requirements of our cereal plants is concerned, dibbling is just as far ahead of drilling as drilling is in advance of broadcast.

The present year has been and is one which was and is remarkably well adapted to show the immense power which the farmer now possesses in the mowing, and especially in the reaping machine, in enabling him to cut down quickly his crops of various kinds. So rapidly and so simultaneously have all the crops ripened in some districts, and so closely have they all been presented to the urgent notice of the farmer, that he may consider himself happy who has more than one

reaping machine at work. In this department there can scarcely be said that there was anything, in the strict sense of the term, of a novelty exhibited, the cares of the makers being more given to the perfecting of their various machines; but in this respect we may state generally that progress was very satisfactorily exemplified. One thing could not help striking the visitors, who themselves were dwelling under the heat of an almost tropical sun, how necessary it is to have reaping machines self-acting in all their movements, so as to dispense with manual labour. Even viewed in its philanthropic aspects, the matter is of great importance, for it is distressing to witness men working hard, and for a range of hours, under the hot burning sun. The whole tendency of improvement in this direction is to reduce manual labour to a minimum.

A season such as this, moreover, brings very forcibly to one's mind that the engineer has yet new paths to follow up, in which aids to labour may be invented, and much toil in the field saved. One has only to travel through the districts which it has been our lot to traverse this week, to see in the tremendous breadth of corn lying cut, and waiting to be carried, that, to make the matter perfect, machinery should be brought to aid the farmer in quickly housing as well as quickly cutting his grain. For to merely cut the grain, and then allow it to lie exposed to such evil influences as our uncertain climate too often brings with it, is very much like the work of a mariner who, at infinite cost and pains, navigates his vessel up to the harbour, but is prevented by some difficulty from entering. When ready, the quicker the grain is housed the better. Many a farmer knows this, but deprecates he cannot do more than what he knows to be the maximum of his labour. Hence it is that this year there is a more than usual interest attached to that class of contrivance which has been working itself up into considerable prominence of late years—namely, that which proposes to help the farmer to stack his corn. A novelty in this way is the apparatus exhibited by Messrs. Amies and Barford, and for which a silver medal was awarded at the Show. This apparatus is adapted to the stacking of hay as well as of corn; and the whole arrangements are well designed, mechanism being used in place of manual labour wherever it can be.

But useful as such appliances are, and greatly desired as their increased use is, it was in another direction of labour-saving mechanism by which the housing of the crops could be facilitated that we pointed in our remarks above, and which was prompted by models exhibited in the yard. This direction is the removing of the crops from the field by other than the ordinary mode of horse-power; and as more than one engineer are directing their attention to the subject, we may see it some day realized. One, and perhaps the most obvious, mode of quickly removing the crops from the field, is an adaptation of the railway system; and this was exemplified in the portable railway exhibited by Grant, Love Lane, Bankside, Southwark, London. In this the arrangements are very simple. The direction of the rails and the width of their "gauge"—that is, the distance between them—are regulated by laying down light iron gauges upon the ground. Upon these the rails rest; these being made of red deal timber, some sixteen feet in length, and cut so as to present a base broader than the surface of the rail. The rails are secured together in line by a very simple joint, the end of one rail being provided with a tongue, which passes into a groove made in the end of the other and contiguous rail. The weight of the passing carriage or truck locks the rail fast together. The whole are easily laid down and as easily taken up. The turntables are ingeniously made, so as to be level with the line of rails, and yet do not require to have special beds or foundations made for them. They are made of wrought and cast iron,

and give each four lines of rails, diverging at different angles. The trucks used in the system are arranged with special ends in view, so as to be easily loaded and easily emptied. The power of horses is used to remove the trucks, of which a good number can be moved by one horse. There is of course no difficulty in employing the power of a small traction engine.

The other model which we have above referred to, is illustrative of a totally different principle of operation, and although it was exhibited with reference to steam cultivation, it is applicable to the purposes now under consideration. This model was exhibited by Fiskien, of Stamfordham, Newcastle-on-Tyne, and illustrates the principle of communicating the power of a steam-engine by the medium of a light rope running at a high velocity. It is right to state that eminent engineers—markedly those of the Continent—are paying considerable attention to this principle, and several plans are now in operation, with marked success. In the patent granted to the Messrs. Fiskien a special claim is made for the application of the system to the hauling of carts. The light or drawing rope passes from the steam engine, which may be stationed at any convenient place, over pulleys, a small flying capstan being used to take up the slack rope, and carried to the windlass, which works the implement or hauls the cart. The light rope passes round a drum, to which it gives motion. The axis of the drum carries pinions, each of which gears into other pinions, which give motion to a large spur wheel, upon the axle of which the drum is fixed, round which the wire rope hauling the cart or implement is passed. Engineers who have fully studied the difficulties of the case state that they have every reason to believe that these difficulties may be overcome, so that we may yet see the power of a steam engine placed at a considerable distance from the field—as at the home-stand—taken off so as to greatly facilitate the removal of its crops. The circle of mechanical appliances to the various demands of field-labour would then be complete; and we should be able to begin the operations by cultivating the soil, preparing it for crops, and finally carting them quickly off, all by the potent power of steam. When all this will be realized it is difficult to say: it is easier for us now to confess our belief that it will some day be realized.

Before dismissing the department of field implements and machines, we would draw attention to the new form of field roller exhibited by Nicholson, of Newark. The principal feature of this is that the roller is enclosed in or works within a circular iron frame. This frame is made double, so to say—that is, there are two frames, one the upper, working upon the lower. To the upper frame, or moveable frame, the shafts are attached, and the frame can be made to move round the lower one, so as to enable the direction of motion of the roller to be changed without moving the roller itself—the horse simply walking round till the position of the shafts is changed, when they can be retained in the new position by checks or lever catches, similar to those used in railway turn-tables. The action of the roller as an abrading or crushing power would be increased if it was made in one or more sections in place of one length, thus inducing a differential movement; and this abrading or crushing action would be still more increased if these sectional rings or rollers were made to move over the land at an angle or oblique to the line of draught. And this obliquity of action could be very easily carried out in this new frame of Mr. Nicholson's, by having lever catches at different points of it, so that the shafts could be placed at any angle with relation to the frame.

Under the section of corn dressing or cleaning



machines several good examples were met with in the yard. That exhibited by Hornsby, of Grantham, is possessed of great simplicity, inasmuch as the mechanical movements more or less complicated for the adjustment of the distances between the wires are dispensed with; and this by simply using a continuous wire or wires to make up the cylindrical rotating screen, and setting the wires not at right angles to the line of axis, but obliquely to this; by this arrangement the wires act as a species of spring, and by means of a simple screw movement the required degree of expansion and contraction of the wires is secured. In the rotating corn screen exhibited by Ransome and Sims, an ingenious yet simple arrangement is introduced, by which the relative distances between the wires is secured. This contrivance consists in having two sets of wires, one of which passes between the interstices of the other set, the adjustment being made by working a small eccentric by a handle at the end of the screen. The rotating corn screen of the Messrs. Penney, of Lincoln, is also possessed of some ingenious points, by which the distance between the wires is regulated. The wires composing the screen or cylinder are united to a series of strong spiral springs which are parallel to the main axis, and which are placed at intervals in the circumference of the screen. As these spiral springs are compressed they carry with them the wires which make up the screen and bring them closer together: in the release of the springs the wires open up. The mode by which the springs are compressed and released is ingenious. The cylinder or wire screen is placed between two discs, one at each end, and which are placed in the main axle; this axle is hollow, and carries within it a screw. To the ends of this screw are provided nuts which have spring arms extending from them, the other ends of these arms being connected to the discs above named, and which carry the spiral springs to which the wires of the screw are fixed. By turning the internal screw of the central hollow axle in one direction, the nuts are brought nearer to each other, or are made to move towards the centre of the length of the screen, and by this means bring the discs closer to each other with the spiral springs and the wires. By turning the handle in the other direction, the nuts of the central screw recede from each other, and allow the spiral springs to widen out and carry with them at the same time the wires of the screen.

In the department of straw cutters, Richmond and Chandler exhibit a machine with some improvements—one of which is a very ingenious arrangement, by which two lengths of cut can be obtained without stopping the machine or introducing change wheels. The central or main driving shaft, which carries the fly-wheel with its cutting-knives, has near the back of the machine a casting which forms two bevil-wheels, one of which is of less diameter than the other, the small wheel being in advance of the large. The lying shaft, which runs at right-angles to the main shaft, and which communicates motion to the feed-rollers, has keyed on it a bevil-wheel, which, when gearing with the bevil-wheel on the main shaft, gives the quick motion to the lying shaft, and by conveyance to the feed-rollers which thus pass out the long cut. The slow motion is thus provided for: the lying shaft carries a sliding clutch which is bell-shaped or hollow, the hollow part sliding over and covering the small bevil-wheel which gives the quick motion when in gear with the bevil-wheel on the main shaft. The outside rim of the clutch is formed into a bevil-wheel which gears with the large bevil-wheel on the main shaft when the clutch is brought forward, thus giving the slow motion to the feed-rollers which thus pass out the short cut. The clutch when out of gear with the bevil-wheel on the main shaft revolves loosely, and communicates no motion to

the lying shaft. To put the bevil-wheel over the lying shaft in and out of gear with the bevil-wheel on the main shaft, the lying shaft has a certain amount of play given to it in its bearings, so that it can be moved to the right hand or to the left as desired. As this would under ordinary circumstances throw the pinion on its outer extremity out of gear with the spur-wheel which drives the feed-roller, the teeth of the pinion are lengthened, so that when the shaft is moved laterally the teeth still engage with those of the spur-wheel. Another improvement in this machine is the having the pressure of the mouth-piece regulated by springs, which allow of an easy adjustment of the thickness of the material passing through to be cut. And the way in which in this machine the material, as the straw or hay, is fed to the rollers is another and a great improvement, and one which we are surprised has never before been applied to the straw-cutting machine, seeing it has for so long been applied with singular success to the feeding of our textile machines. The plan is simply the adaptation of an endless revolving apron, upon which the straw or hay is placed, and by the movement of the apron—this being secured by very simple means—it is gradually taken up to the feed-rollers which lay hold of it by their serrated teeth; this plan is infinitely superior to the solid-bottomed hopper or trough, which required the assistance of a man to press-in and keep-up the supply of material to the feed-roller. This was often the cause of serious accidents, which need not occur with the self-feeding apron of the machine now under notice.

Alcock, of Ratcliffe-on-Trent, Nottingham, exhibited a straw-cutter, which had a simple arrangement for changing the length of cut. The back or lying shaft is provided with two pinions of different diameters and connected to a sliding-clutch, which is moved to and fro upon the shaft by means of a lever handle; according as the clutch is moved, one or other of the pinions gear with spur-wheels keyed on to another shaft, and which conveys the motion to the feed-rollers. In both of the machines now noticed the mechanism gives only two cuts, but by using in addition change wheels other two lengths may be obtained.

Many people doubtless examined the disintegrator of Carr, of Bristol, yet did not take notice or perceive the novel principle of its action, a principle essentially different from that of the usual mode of disintegrating substances by grinding them or rubbing and abrading them. In Mr. Carr's machine the material is broken-up while suspended in the air, being there struck by one of the bars of the apparatus, or by another piece of material. By this principle the mere weight of the material to be broken and its hardness are made to act as important elements in breaking it up or in disintegrating it. The apparatus consists of three revolving cages one within the other and all radiating from a central or common shaft. Each cage is made up of two solid disked ends, which are connected by horizontal bars stretching from one disc to the other. The cage is thus perfectly open at the circumference, with the exception of the very narrow bars which join the discs. By an ingenious arrangement of hollow axles and cross belts, the three cages have movements in opposite directions, and a very high speed is given to them. The material, as superphosphate, guano, &c., is put into a hopper which leads it to the interior of the innermost cage; as the material is kept whirling round, and by the centrifugal force made to fly outwards, it meets the bars and is struck by them; still passing outwards, it is met by the bars of the second cage revolving in an opposite direction; still passing outwards, in virtue of the centrifugal force generated by the high velocity of the cages, it is met by the bars of a third cage, which revolve in a different direction, and is finally passed into a re-

ceptacle formed by a space left between the outer casing and the third revolving cage.

Whether the subject of water supply has this year had greater prominence given to it than usual on account of the extraordinary dry weather we have had for so long a time, we know not; but certain it is that the show-yard was possessed of an unusually rich collection of hydraulic apparatus. Probably the most popular apparatus of this department was the American tube-well, which, however, is no longer so called, but glories in the fresh title of the "Abyssinian well." The principle upon which this system works is simple enough, it consisting merely in the driving of a hollow wrought-iron tube into the soil, until the water is reached, which passes into the tube through apertures at the foot, and is pumped up in the usual way; or, if the tube strikes an appropriate source, the water is forced up to the ground level or above it in the artesian-well fashion. The tube thus sunk into the soil is made of wrought-iron, and has its lower end or foot steel-pointed and provided with apertures, which allow the water to pass into the interior. The tube is driven into the soil in the same way as piles are driven—a small ram or monkey passing over the outside of the tube, and which when lifted up, falls upon the top of a clamp, which is attached to the tube. This clamp is made to embrace the tube by being made in two halves, which are bolted together at any part of the tube desired; and in order to enable the clamp to take a good grip of the surface of the tube, it is made serrated or ribbed in the inner surface. As the tube is made to descend, and the clamp is thus brought nearer to the soil, it is removed and placed further up the tube. If more than one length of tube is required to be sunk, another tube is screwed into the head of the tube first sunk. The monkey or ram is raised by means of ropes or chains, which are attached at each side of the top surface to swings; the ropes or chains are led upwards and passed over pulleys, which revolve at the end of a clamp, which is secured to the upper extremity of the tube, as the fall of the monkey will be lessened as the tube is forced into the ground. Mr. Norton, the patentee, La Belle Sauvage Yard, Ludgate Hill, London, has introduced a new mode of sinking the tubes, using a tripod which supports the pulley for the monkey or ram at an invariable height, thus obviating the necessity of removing the pulley clamp at intervals. To this tripod, when large tubes have to be sunk, a very ingenious apparatus is fixed, having for its object the keeping or holding down of the tubes to their work of penetrating the soil, it being found in practice that where the tubes are large there is a reaction under the impact of the monkey or ram which gives the tendency to rise up. To prevent this a cross-head is applied to the top of the tube, and to the end of this "accumulators" are suspended made up of iron plates and india-rubber bands. Chains are taken from the lower ends of the accumulators, and led down and passed over pulleys fixed to the end of two deals which lie upon the ground, and then taken to a small crab or winch. By giving this a turn or two a steady pressure is put upon the cross-head and the tube, keeping this well to its work, and preventing all rebound. When the tube strikes water in a quicksand, the sand is prevented from being passed up and choking the apertures and pump by having an internal perforated pipe at the foot of the outer tube, the space between the two tubes being filled with a coil of wire gauze, which acts as a filtering machine. The apertures in the foot of the pipe in some cases get blocked up with clay, which cannot be got out by the working of the ordinary pump attached to the top of the tube; but in this case water at high pressure is forced down the tube, which clears the apertures. The main feature of this system is the rapidity with which water is obtained: a tube seventeen feet in length has

been sunk in fourteen minutes, and in five minutes more the pump was attached and was drawing water. The system is of course only applicable in soils which are easily penetrated—small stones are pushed aside or broken up by the steel point of the tube, but rock or large stones cannot be penetrated. In correction of this disadvantage, Warner, of Cripplegate, exhibited his tube-well system, in which the tube is sunk into an aperture made in the ground by an adaptation of the ordinary boring tackle.

A large number of pumps was exhibited of various designs; the greatest novelty being a chain pump by Hunt and Pickering. This is distinguished by great simplicity of parts, yet by an effectiveness in working very striking. The pump, if indeed it can be called a pump, consists of an endless chain, to which a series of flat iron discs are attached at intervals; this chain works over pulleys, one at the top of the tube, up which the water is lifted, the other submerged in the water. The discs are a little less in diameter than the tube, up which they pass in succession as the chain is made to revolve; and a very slow speed raises a large quantity of water.

Owen, of Whitefriars, London, exhibited one of their centrifugal pumps, the patent of Mr. Bernay, in which the revolving fan is entirely relieved from the pressure of the water on its outer surfaces, a fertile source of loss of power, this being secured in a way as simple as it is effective by merely turning or facing accurately the working surfaces, so that they work in close contact—the edges of the fan and the part of the casing against which they bear. Messrs. Owen also exhibited a form of hydraulic ram, an apparatus which we would like to see more extensively used in the rural districts, as it is a cheap and effective mode of raising water from a low to a high level, thus securing a supply at pressure which may be made available for a variety of purposes on the farm, even for the working of a small turbine, by which the small machines, as the straw cutters and the like, may be worked. Another advantage obtained by a supply of water at pressure is its use in cases of fire. This desideratum is proposed to be met in another way by the Messrs. Owen, by the use of a steam pump, which is exceedingly compact. In this, all the working barrels and cylinders are horizontal, the pump being at one end and the cylinder which works it being at the other end of the frame which supports them. Messrs. Tangye Brothers and Holman, 10, Lawrence Pountney Lane, London, also exhibit a simple and effective form of double-action pump. In this there are two pistons or plungers, working in horizontal barrel, these work alternately, and thus keep up a continuous supply; the suction valves are placed at the ends of the barrel, and are easily examined by simply taking off the covers.

A very interesting department of the show-yard was that occupied by the seeds, manures, and feeding stuffs. The nature of the two latter materials precludes the possibility of making the stands at which they are shown attractive; although in one case a manufacturer of feeding stuffs made a dazzling display, not of the "stuffs" he sold, but of a number of silver cups which he proposes to give to those who use them in practice and under certain conditions.

#### NOTES UPON NOVELTIES.

The most careless visitor to the implement yard at Leicester could not fail to be struck with the number merely of the machines and implements there exhibited, to say nothing of the variety in their forms, from which he would be able very readily to deduce the fact that such a variety of apparatus involved the corresponding truth that the operations of practical

farming were exceedingly numerous. This would, however, be the result of a mere outside view of the matter, and would not be, nor is justified by the truth. For it is perhaps the most correct way to put the matter to say that the operations of farming are not so numerous, but that the modes in which those operations are proposed to be done are numerous, varying as the opinions of practical men, and in reality found to vary as to the way in which the operations should be done. And it also further happens that the varieties met with in practice are not merely the result of some men being desirous to be different from others; but from this fact—that circumstances of soil, climate, and locality demand changes in the mode of working and meeting them. Hence arises one of the circumstances which so thoroughly and completely astonish those not practically acquainted with agricultural processes—namely, the strange diversities of opinion which exist amongst farmers, diversities which do not exist in connection with other sciences. But the reason is at once obvious, even on a very cursory review of the point; and is indeed explained in what we have alluded to—namely that the differences in locality, climate and soil, which are found to exist in ever-varying shades throughout the country, bring about and are the cause of those ever-varying shades of difference in practice. It is extremely probable, however, that this wide difference in the practice of farming, as characterizing the agriculture of this country as a whole, will be much removed and speedily reduced to a minimum through the agency of improved modes of working and the introduction of improved machinery by which those modes will be carried out.

No one could thoughtfully examine the work done by the steam cultivators in the trial field, and the machinery by which this work was done, without being struck with this—that the soil was turned up and left to lie under the best possible circumstances calculated to allow the atmospheric influence the best of all cultivators, to act upon the whole mass, and to leave it, after an autumn and a winter, in that condition in which very little working of other implements would be necessitated. Wherever deep and careful stirring of the soil has been carried out, there the after-implements are not used much—some not at all. With a fine tilth brought about by the exposure to the rain, air, and sunlight, little need there is for clod-crushers and the like: the simplest implements only are required, and little work even from them is demanded. And in view of the advantages of turning up the soil in this way, we are of those who believe that the future of the steam cultivator is in giving depth, not merely a power to run over a certain and a large surface of land. We are no believers in this scratching power of steam. In place of the maximum of surface with a minimum of depth, which some deem of such high importance, we would simply reverse these conditions, and say, We shall be content with the minimum of surface if you only give us the maximum of depth. The powers of fertility lie hidden in the depths of the soil. A grand lesson is conveyed in the fable of the old man, who told his sons that a field he left to them contained, hidden below its surface, a vast supply of gold; but kept back a knowledge of what part this was to be found in. The sons began to dig, and better dig the field, digging deep moreover, always in the hope of turning up the supplies of the precious metal. This was never found; but in the after highly-increased fertility of the field thus so deeply dug, the truth began to dawn upon them that they indeed had struck a mine of wealth as good as gold. Hundreds of years have rolled over the heads of men since this fable first was uttered, yet we have scarce begun to see the lesson of value which it contains. For years and years we have contented ourselves

by merely scratching the surface of the fields, and endeavoured by all sorts of expedients to maintain the fertility of the oft-used soil, which could have been at once supplanted by bringing up from below, which are in reality, the hidden treasures of the soil. True, it may be said, and to a large extent truly said, that this deep digging could not be done: the mechanical appliances at hand were not fitted for the work, and the cost of doing it by the exercise of patient manual labour was so much as to be entirely prohibitive. But now all this is altered; with steam we have a power to which, indeed, there is scarcely a practical limit; and to those who are desirous to avail themselves of it, we would say, "Dig deep, the gold lies low;" the same lesson, indeed, which the old man in the fable wished to teach his sons. In saying this, and so clearly expressing our opinion that the future usefulness of the steam plough, or cultivator, is in the depth of cultivable soil which it will give us, rather than in its power to run lightly over the surface, we by no means ignore or overlook the objection made to the bringing up of the lower soil, which is so often made by those who believe that by bringing the subsoil up, you do not add to the fertility, but rather tend to impoverish the upper soil, which has been so long in cultivation. But in carrying out deep cultivation, it is worth while remembering that there are two modes of carrying out a system—a right way, and a wrong way; and we do not hesitate to say that in nearly all cases where deep culture has been productive of evil consequence, it has been because it was done in the wrong way. There is still all the difference between cultivating deep in the right way, and cultivating deep in the wrong way. Again, it does not follow that because you cultivate the soil deeply, you therefore bring up the subsoil and mix it with the upper soil; deep culture may, and indeed does, involve deep stirring of, without bringing up to the surface the subsoil, just as to be sure on the contrary it does mean deep breaking up of the subsoil, and bringing this up to the surface, and mixing it with the old soil. This is not the place to enter into a detailed statement as to what deep culture really is, suffice it to say, that in deep culture, properly done, lies the future, we believe, of our agriculture, and in the ability to do it cheaply and well lies the future of the steam cultivating machinery. This was one of the thoughts most strikingly suggested to our minds, by what we saw in the trial fields of Leicester. And another was connected—the wonderfully wide extension of the principle of grubbing or smashing up (as it is now frequently, if not very elegantly called) the soil, in place of turning it over with the plough. It is very suggestive to trace the history of the application of this system of working, the type of which is to be met with in the old-fashioned harrow; to note how very slowly it was taken up, how suspiciously it was looked upon for long, and how remarkable was the extent of its use after a certain point in its history had been reached. Nor is it less suggestive to note how dependent this system of working the soil was upon another department of farm work—namely, the deep or thorough-draining of it. Without the deep draining of the soil we should never have been able to work the grubbing system of stirring it. The extension or rather the completion of the one led to the extension of the other. The grubbing or smashing-up system is only applicable) we here name the term in its strictest sense, namely, as truly and directly applicable)—to the working of dry, or at least drained soils. Under the old régime, when the plough reigned supreme and brooked no rivals near its throne, and when the water was not taken from the land, but the land was lifted out so to say from the water, an astonishingly complex series of operations were necessitated to make the soil fitted for a seed-bed, and the depth of this seed-bed was, from the

nature of the circumstances, necessarily limited. But as soon as the system of land drainage had been well carried out, the system of land preparation, by means other than the plough, was within the reach of the farmer; this means being the grubbing or smashing up system. And any one quietly examining the work in this department which the steam-cultivating systems at Leicester did, would have no great difficulty to see that through the means of this system the farmer will henceforth be able to reach effects, which he might have dreamed of before, but which under the olden times he could never have realised. The considerations suggested by the rapid extension of the system of grubbing or smashing up the soil are really of the highest importance, and it is worthy of note that they are becoming daily more so, and we confess that we should like to see them taken up by the Royal Society. This is, we believe, fully necessary; for it is a curious fact, that already some practical men are beginning to object to the system, because they say it affects the fertility of the soil. This certainly seems to us a very remarkable and utterly unexpected, and should further say unexplainable result of the system. It comes, does such an objection, with all the force of such an utterly unexpected thing, that at present we can do no more than state that it has been made. All the experience we know of, is precisely in the opposite direction.

While in the department of steam-cultivation, we may here note that two machines connected with it, and exhibited in the showyard at Leicester, raised up subjects both for retrospective and prospective thought. One was a steam-cultivating apparatus, exhibited by Mr. Charles Harratt, of Nottingham; the other, Comstock's rotary spade, exhibited by the manufacturer, Mr. Porter, of Lincoln. Let us glance at the arrangements of Mr. Harratt's apparatus in the first place; and let us premise that however good the principle of the apparatus may be thought by the inventor, his engine by no means did the principle justice in the mechanical arrangements by which the principle was proposed to be carried out, or in the workmanship of the details. And here we may note, as worthy of some consideration, that in both the cases of the inventors now under notice, the term "spade" is used with the prefix rotary, meaning thereby no doubt rotatory—a very different thing by the way—the term being used with a very singular inversion of the work really done by a spade, the operation of which is essentially distinct from anything like a rotatory movement; one and only one movement, of the spade as ordinarily used approaching a circular—that namely, in which the lifted slice is turned over, and that done by a quadrantal movement; all the other movements are right-lined. Now, in the machines under notice the movements are essentially circular, and bring about a condition of soil decidedly different from that brought about by the use of the spade. Rotatory cultivation partakes largely of the abrading or rubbing down of the soil, very little of the turning over or inversion which is the distinguishing characteristic of the spade and of the plough, just as "prizing off," raising up, or displacing, is the characteristic of the grubber or cultivator. Now this abrading or rubbing action is peculiarly that of the apparatus of Mr. Harratt. The cultivating part of the apparatus is made up of a shaft working horizontally at the back of a rectangular frame, at the other end of which is a steam-boiler, the engine being placed midway between the two. The shaft, which lies at right angles to the line of draught of the apparatus while at work, carries a series of radial arms, which carry in turn what the inventor calls spades, but which are simply-open sided scoops, or pieces of wrought-iron bent into a claw shape. As the shaft revolves these are brought into contact with the soil, and tear it down, abrade, and throw it up in a pulverized

condition; that is, such is the work which is claimed for it. The reader acquainted with what has been already done in the way of rotatory cultivating apparatus will see that this principle of working may be looked upon as a modification of that of Mr. Romaine, of which so much was heard, and not a little to the high credit of the inventor seen, some years ago. There are some ingenious arrangements by which the power of the engine is at once taken off to the cultivating drum without the intervention of the connecting-rod and crank usually adopted; although we believe that there will be more loss of power with these than if the inventor had used the old-established modes of communicating motion. The boiler was on Field's principle, which we have described pretty fully. The apparatus of Mr. Comstock consists of a series of tines, which are attached to levers radiating from a central axis, and which, as the implement is dragged over the land by horses, enter the ground, tear it up, and throw it backwards. By a very ingenious arrangement of side bars, in which are made eccentric paths or grooves, the levers as they come round in succession are presented perpendicularly, so that they are in the best position to enter the ground, and after tearing up the soil they leave it in the same way, the action being very similar to that form of paddle for steam-boats in which what is called "feathering" is adopted. A very slight consideration of the mode of action of these two machines, as indeed may be said of all rotatory movements in cultivating implements, which possess more of the characteristics of action of the tearing, scraping, or abrading action of the mole than of the boring and turning over action of the snout of the pig, which may be taken as the prototype of the plough; we say that a very slight examination of the rotatory principle will show that it can only be in certain soils and in certain conditions of soil that they will work—that is, work satisfactorily and economically—the type of such soils being met with in a loamy soil which is in a fine state of tilth, and therefore easily torn up, abraded, or pulverized. In close adhesive soils of that tenacious bird-limy, bricky character so often met with, the principle of rotatory action will not be found a good one. If inventors of rotatory cultivating machines would only bear in mind what we consider an eminently sound principle in agricultural mechanics, that certain forms or arrangements are only calculated to do work under certain conditions of material upon which they operate, they would have a much better chance of success. But they generally claim too much for their apparatus—claim a power to do work with them for which they are altogether unfitted; hence when attempting such work they fail, and hence also an amount of prejudice is raised against them, with which few machines can be found to compete, and which, as the history of agricultural mechanism has shown, they have not been in practice able to compete; for of all the machines of this class which have been exhibited, none now take a place in the list of machines in practical use in the agriculture of the day. A striking exemplification of this was met with at Leicester, for Comstock's rotatory spade was tried, or rather attempted to be tried, in a soil and under circumstances for which it was not in any way fitted. Better far would it have been for the interests of the inventor had the exhibitor declined to compete, pointing out to the judges the reason of his declining, and why those reasons were very potent ones. One advantage would thus have been obtained, for the judges would have had put before them a point which all judges do not seem to be aware of; that there is really a philosophy, the principles of which dictate the terms in which implements and machines can alone do their work. Had this truth been thought of, in years gone by, the registration of very stultifying results might have been avoided, results which

have retarded in no small degree the progress of agricultural machinery. Judges at agricultural trials should be able to take broad comprehensive views of the machines which they examine, the work they are fitted to do, and whether that work is needed, whether it is an inevitable adjunct of certain circumstances of farming, or whether the work is necessitated only by the necessities of a false or unsound system of operation, and from all this generalization to deduce particular principles which would guide or have a tendency to guide future progress. Then all this, and more than this, for time would fail us if we attempted to name all other points, should be clearly debated in reports issued immediately after the shows—reports in reality, not in name, as too many of the published reports are. We have no hesitation in saying that the reports published in magazines and journals interested in agriculture are infinitely superior to the official reports of societies, both in the minute detail of mechanical description, and in what we may call philosophical deductions and remarks. A very great reform indeed is needed in the present judging and official reporting system, and this is one of the thoughts suggested to us by the Leicester show.

In the great trials of steam cultivating apparatus, which will mark for some time the Leicester Meeting, the two great systems of the "direct-action" and the "roundabout" were alone represented: that of the rotatory—as may have been gathered from what we said in discussing some of the points of that principle—was not represented. Much may be said on both sides. But be this as it may, we pass on to notice here a form of "windlass" which as an adjunct to the roundabout system is worthy of notice here, namely, that exhibited by Mr. Edward Hayes, of Stony-Stratford. The main objects—and it must be confessed that they are highly important, indeed all-important ones—are, first, the economization of labour in working the windlass, getting rid of the service of one skilled labourer or workman, the man attending the engine being fully able to overtake the working of the windlass; and second, the economization of time in working the cultivator, the signalling being dispensed with, and time saved at the headlands in changing the direction of the implement and adjusting the anchors, the motion of the cultivator being continuous. How Mr. Hayes obtains these desiderata, we shall now explain. The winding-drums are placed on a shaft in the centre of a rectangular framing of wrought iron, and which is supported on four wheels by which the windlass is transported from place to place. This frame encloses all the working parts, so that there is no possibility of any accident taking place by the attendant being caught by the rope or by the gearing of the windlass. In the centre of the main shaft or axle—which runs in the direction of the length of the frame—is a pulley running loose on the axle: close on each side of this is another pulley of the same diameter, but which is fixed to its corresponding drum. There are thus two winding-drums and two fixed pulleys attached one on each side of the central loose running-pulley. When the engine is not at work the driving-strap, taken direct from the fly-wheel of the steam-engine, works upon this loose pulley; but by shifting the strap—by means presently to be described—to either one pulley or the other fixed to the drum, one of the drums is either made to wind up, dragging the cultivator, or to unwind, giving out the "slack" rope; and this goes on so long as the driving-strap remains upon the fixed pulley. How this shifting of the driving-strap from loose pulley to fixed pulley and drum is done we now describe. Parallel to the main shaft or axle upon which the drums and pulleys are hung, a flat bar is placed, and made to slide to and fro upon the framing. This flat bar has springs provided, the action of which is

to keep the bar in such a position—when not acted upon by any external force—that its central part is always opposite to the loose pulley; and at this point is the guide which leads the driving-strap; nominally, therefore, the strap and the bar are always in one position, and that position places the driving-strap upon the loose pulley. The flat bar at one end is furnished with a handle; and, near this, three notches are cut in its face, which notches take in to a stud fixed in the frame. When the bar is moved along by the handle, so as to place one of the notches upon the stud, the driving-strap guide is brought away from its central position, and placed opposite one of the fixed pulleys, and therefore passed on to it, and the drum begins to move, and keeps moving so long as the stud is in that particular notch. By moving the bar by the handle, and relieving the notch from the stud, it flies—by means of the springs—into its nominal position, and places the driving-strap upon the loose pulley. Accordingly, then, to the notch in which the stud is placed, so is the drum which is working. Those who have watched a cultivator at work when steam-power dragged, will have noticed the frequent want of uniformity in the draught, this being brought about by the inequalities of the soil in which it is working; and to such an extent is this observable in some soils, that the implement goes forward in a series of jerks. Now, these varying speeds in the progress of the cultivator bring about a varying action of the uncoiling drum of the windlass, which brings into play a tendency in some cases very marked for the drum to throw out too much slack rope. Where this is the case, the result is that as soon as the obstruction or inequality in the soil, which hinders the uniform steady progress of the cultivator through the soil, is removed, and the full strain of the winding-drum comes on them, as there is too much slack rope out, the result is that the cultivator goes too rapidly forward, jerk fashion, again to be pulled up by an obstruction. In many instances, all this does not happen in practice, but, then, in some it does; and, indeed, from the nature of soil generally, the practical fact is that the draught of the cultivator is not uniform, but is undergoing a series of perpetual changes: true, these may not be so potent as to make the varying draught visible to the eye in the varying progress of the cultivator; but it nevertheless always exists to a greater or less extent, as anyone knows, who has watched the progress of a plough or cultivator through the soil under the test of the dynamometer. To obviate in as great a degree as possible the disadvantages in working which thus arose, Mr. Hayes, in his windlass, has adopted an arrangement of a shifting check-brake. One only of these is in operation at a time, pressing only, by means of flat springs, regulated in pressure by a lever upon the side of the drum which is giving out or uncoiling the rope. The pressure given is only such as will prevent the variations in the speed of the uncoiling drum carried by the varying draught of the cultivator as noted above, so as to give out a uniform supply of slack. As the check-brake is applied only to one of the two drums in the windlass, that is, the drum which is unwinding or giving out the slack; and as the drums perform this office alternately, some contrivance is needed, by which the check-brake can be taken out of contact with the drum, which has just ceased to act as the unwinding drum, and is about to act as the winding-drum, and to bring the other check-brake in contact with the drum, which has ceased to act as the winding and is about to act as the unwinding drum. This is done by simply attaching a chain to the brake-bar and to the driving-strap guide-bar; so that when the driving-strap is changed from one drum pulley to the other, the check-brake is changed also, so that it goes out of contact with what was the unwinding drum, and is placed in contact with the drum that now acts as such. As said

above, this check-brake is only meant to regulate the giving-out of the slack; but is not powerful enough to stop the windlass when this is required. Mr. Hayes secures an exceedingly powerful brake by a method as effective as it is ingenious, and of which the principal feature is an hydraulic brake. The cylinder of this is supplied with water from the boiler, so that the pressure is the same in the cylinder as it is in the boiler. The mode by which the cylinder actuates the brake will now be described. The brake itself is made up of an iron frame carrying the usual wood-rubbing surface; the iron frame is connected with, and is therefore pushed in contact with the drum which is desired to be braked—levers which work in connection with the piston rod of the hydraulic cylinder. The water from the boiler is admitted to the cylinder by means of a slide valve, which is worked by a cam. This cam is connected to the driving-strap guide-bar; so that when this bar is moved in one direction, the cam is moved and the water admitted to the cylinder, the piston-rod of which shoves the iron frame and brake in connection with the drum. Suppose the strap to be upon a winding pulley, a small trigger keeps the strap guide-bar in this position, and returns the strap upon the pulley as long as desired; but if it is required to stop the cultivator, the trigger is pulled, the springs of the strap guide-bar previously described pull the bar into its normal position, in which the driving-strap is placed upon the loose pulley, and simultaneously with this the cam is actuated by the movement of the guide-bar, and the water cylinder at once acts upon the brake. The brake is so powerful, that a pressure of 1,000lbs. is at once thrown upon the unwinding drum, and the giving out of the slack is instantaneously stopped—practically so; for we do not think we have seen as much as a quarter of an inch given out after the brake was applied. Now, as the man working or attending the cultivator is the one who knows when he wishes it stopped, this power is given him by simply attaching a rope to the trigger of the guide-bar named above; so that by pulling this he can at any time release it, and allow the strap guide-bar to go back to its normal position, putting the strap on the loose pulley, thus stopping the engine from acting on the winding-up drum, while simultaneously the water-brake is put in action, stopping the giving out of the slack. When he is ready again for work he signals the engine-man, who moves the guide-bar, puts the strap upon the pulley of the winding drum, and releases at the same time the water-brake, by causing the bar to act upon the cam of the slide valve of the water cylinder, so as to make it exhaust or pass out the water, leaving it ready to be filled and to act when required. Should the weather be foggy, in place of the attendant upon the implement in the field signalling, he pulls a small cord, which strikes a bell, thus informing the engine-man to put the winding drum on. We have been thus particular in describing this form of windlass, as in common with many practical engineers who have examined it, we believe that it possesses many features of high practical value. At the same time it is our duty to point out that objection has been taken to the driving-strap, which will slip in wet weather. This is obviated by Mr. Hayes adopting a simple housing or cover. On the other hand, we must not overlook this—that, as a means of communicating, changing, or checking the motion of machinery, the driving-strap system is almost unrivalled in efficiency, as is well shown in the almost universal adoption of it in practice; and as in this case the engine does not require to be stopped when the windlass is stopped, and set on when the windlass resumes its work (the changes being all made by the belt), the engine attends to itself, so to say. By this mode of working, a skilled windlass-man

is not needed, the engine-man being able to attend to it as well as to his engine. In saying all this, we say it in the interest of our readers, not in that of this contrivance as a commercial matter.

It may be accepted as a sound maxim that we do not occupy safe ground in the discussion of any question when we take an extreme or one-sided view, although we are nevertheless aware that there are those who take up, if not exactly the opposite, at least a modified view of the same question, and who are really as much entitled to a hearing as we are. When therefore we find an authority, or one who is supposed to be an authority, very decidedly condemning as utterly worthless, and quite, in every sense, an old and effete implement, the "swing plough," as was done during or at the Leicester Show, the question at once comes up before us: "Is this so?—is it true that the swing plough is useless?" And when we take into consideration that in many districts this old implement is still largely used, and, so far as anything is indicated to the contrary, is likely to be largely used for years to come, it certainly does seem to us a more philosophical way to treat the discussion of the matter by carefully and studiously inquiring what are the reasons which dictate the use and maintain the use of this form of cultivating implement? than rashly to conclude that there are no reasons. True philosophy tries all things and examines all things, and then, finding the best, holds by it. But then, true philosophy also knows this, that there may be, and are, often in practice conditions or circumstances in which one system is not applicable in practice without undergoing large and decided modifications—that, in fact, while one system is good for one set of conditions, another is better for a different set of conditions. In few branches of practical science is the Procrustean theory applicable, if we may be allowed the expression, in which every fact is to be cut down or lengthened out to meet the exact limits of one system. And in no science is this so true as that with which our readers are concerned, and in the discussion of all points connected with it they are so interested. Such an ever-varying series of circumstances are being brought into existence, that the practice of one district is found totally inapplicable to another set of conditions; and, indeed, to such a degree is this a marked characteristic of practical agriculture, that the result of one year of the same mode of operation of the same system in the same soil may not be often—indeed, are not the same in another year. Hence it is always an unsound thing for anyone to deduce fixed and determinate rules, which are the result of a sweeping generalization, in agricultural practice. And he who condemns the use of any implement, in every case of practice, because he finds on examination that another, and we shall say a rival, implement is more extensively used, without full and fair inquiry into the reasons why this use of the condemned implement is met with, is just as wise, and possesses just as accurate a deduction, as he who, having heard of the good effects resulting from bone manuring some pastures and meadows, insists upon it that the same good effects would result in applying the same manure to all pastures. The point here opened up, although perhaps it may be condemned as of no great moment when referring to the use of the swing plough as against that of the wheel, is, we insist, of very great importance in many of the questions of agricultural practice. For we have no hesitation in saying that a vague generalization, or lack of philosophical acumen, in deciding the points of a question, has had a most prejudicial influence upon the progress of many of the departments of agricultural practice. Before opinions are so decidedly given, the *whole* bearings of the question should be taken into consideration, and then a philosophic deduction or series of deductions made,

If this had been done in more than one of our agricultural questions which have been discussed during the last twenty years, a different conclusion would have been come to, and some time and much confusion would have been avoided.

This train of thought has been brought into immediate operation in consequence of the Implement Committee of the Royal Agricultural Society having been blamed for allowing swing ploughs to be tried now-a-days at the trials of the Society, and this on the ground that the implement is obsolete, useless, and mechanically wrong. Now, for the present waiving here our right to criticise the way in which this charge was made, we have no hesitation in saying that the Implement Committee are perfectly right in continuing the swing plough in the list of cultivating implements to be tried, and this on the broad ground that it is not useless, nor is indeed for a long time likely to be. It is easy to say that those who use the swing-plough—and it is used in many districts, and those not the worst farmed, by a long way, in the kingdom—are of the old school, that they stick to its use through prejudice; easier far to say this than to inquire why it is used, and whether there may not be some reason, thoroughly sound, for its being used. We are of those who maintain that there is such a reason. We maintain that in some soils the swing-plough is the only one by which good work can be done, those soils being such in their inequality of texture, or in the way in which they are filled more or less with obstacles of one kind or another, that a degree of selecting care and of manipulative skill is demanded of the ploughman, and which would not be exercised through the medium of a highly-finished wheel-plough, which would only be cumbersome in place of being a help. Then if the question between the wheel and the swing plough is to be argued mechanically, then in place of the swing-plough being put out of court as mechanically unsound, not a few eminent engineers can be found to prove that it possesses in its mechanical aspects more favourable points than the wheel. We say all this in no way desirous to forget—on the contrary, in every way desirous to remember—what the wheel-plough as a beautifully-designed implement is, and what the high character of the work which it has done, and how it deserves the high favour in which over so wide a field it has obtained. All that we would insist upon is, that the *whole* conditions of trial must be taken into account, before we decide finally as to whether a wheel-plough or a swing-plough will be the best. And if this is done it will be found that there are conditions in which the swing-plough will be found the best to use; and that, therefore, the conclusion we come to is, that the Implement Committee is perfectly right in keeping on the list of cultivating implements, to come up at triennial intervals for trial, the swing-plough. But, from what we have said, it will also be perceived that another conclusion is inevitable—that the respective claims of ploughs be tried under conditions calculated for the display of their peculiar powers. And this was the weak point in the trials of the swing ploughs at Leicester—so weak, indeed, that no practical results came of them.

Extreme views are sometimes best met by other extreme views; so that when we find one who in his high appreciation of the wheel-plough as against the swing, or, *au contraire*, in favour of the swing as against the wheel, giving very extreme views as to the claims of his apparatus, we think him well met by some one coming up with the dictum that they are both wrong together. Thus we find those who hold that a plough, as a plough, whether it be swing or whether it be wheel, is altogether an implement of the past, old, effete, and worthless, which must give way to another system of working the soil. And upon

the whole, a fair range of faults *this* school does manage to bring up against the plough, the oldest and the most honoured of all our implements. As, for example, the advocates of the new system say, and say truly, that if deep culture of the soil is to be desired—as improved practice would show that it is to be desired—then the plough is not the implement by which this can be secured; for the tractive power required, as the depth increases, goes on in a ratio far greater than the ratio of increase of depth; and, indeed, so much is our difficulty of increasing the depth of working of a plough, that the maximum of depth is soon reached. This was very instructively displayed at the trial fields of Leicester, and by which it was clear enough that when you do make up your mind to have a certain, and that a considerable depth, you will be necessitated to discard the plough as worked in the ordinary way: no matter whether you are enamoured of the wheel or the swing, you will find in such a case that neither of them will suit your purpose. Further, the plough displays—so say its enemies—an inherent defect, or rather inherent defects, in its principle of working. Thus, they say, if it is to be desired that the soil we turn up in our fields should be subjected in the best possible way to the atmospheric influences—as to the value of which we are all agreed—then the plough does not place the soil in this favourable condition, on the contrary rather, for it lays it over in a close compact slice, like a brick, in place of laying it on the upper surface of the soil broken and divided, and with multiplied surfaces in the maximum upon which the atmosphere is to work. Further: if, say the enemies of the plough—if it is to be desired, as improved practice and a better knowledge of the habits of the plants show that it is to be desired, to have the soil in such a state that the roots of the plants can easily penetrate into the soil, and to such depth as the habits of each plant may dictate, then the plough does not give this condition of soil; for, from the very nature of its action, it makes the soil over which it works well-glazed, and thus to a large extent impenetrable to the roots of the plants. Such may be taken as some of the counts of indictment brought against the plough, from which it will be seen that there is really something in them—not so much, however, in our opinion, as to justify the notion held by some that the days of the old plough are numbered. This will not be now—not in our day at least, if the day will ever come: it is the king of cultural implements, notwithstanding all its faults; and we all know that the king never dies. Improvements not only in the plough itself will be made, we doubt not, but also in the very mode of working it, and this, in all probability, in conjunction with our other implements: but it will not for a long time be discarded: it is too valuable for that. As the maker of a seed-bed, and as the turner-in of weeds, it stands absolutely unrivalled.

An improved plough, or, perhaps, to put the matter on safer ground, a plough displaying some peculiarities in arrangement and construction, was exhibited by Fowler, of Leeds, who has, it is said, purchased the patent right of it from the inventor. The main peculiarity of this is the employment of two ploughs, one in advance of the other.

**THE ABYSSINIAN PUMP.**—The Abyssinian pump has attained undying celebrity in Leicester. The fact is due, in some measure, to the heat of the weather. But the simplicity and efficiency of the apparatus itself may claim the lion's share of this merit. If it had not been for the impromptu character of this pump, no one would have thought of producing a supply of water from the "bowels" of Leicester race-course. In about 25 minutes, however, down went an iron pipe, 23 feet through the crude surface, under the judgment



and energetic instructions of Mr. Giles (Mr. Norton's agent); a stratum of sand was then penetrated, and in a few minutes a supply of pure water was found, and this flow proved to be constant throughout the show. We have mentioned the heat of the weather as an element in the lasting celebrity of this pump. We have done so for this reason: throughout this meeting the heat and rarefied character of the atmosphere has been so extraordinary that thirst has been a positive infliction on the visitors to the show-yard. As the water drawn by this Abyssinian pump was clean, and of a temperature of about forty degrees, the stand of Mr. Norton was as fiercely besieged by the visitors as was the rock of Magdala by the British troops. Machines were broken, and everything was thrown into disorder by the pressure of visitors in their anxiety to get a draught of pure and cold water. After enduring this pressure for some time, some one suggested to Mr. Giles that it would be a good plan to establish a hoarding, charge a penny a glass for water and give the proceeds to some public institution. No sooner was this said than it was agreed to, and in a few minutes Mr. Giles had posts driven and ropes and rails fixed, when the pence rolled in so rapidly that between three and six o'clock the sum of £4 7s. 6d. had been taken. It had been previously arranged, by intercourse with Mr. Hunt (of the firm of Hunt and Pickering), that the proceeds should be presented to the Leicestershire Infirmary. Yesterday this

arrangement was continued, and as the heat of the weather had, if anything, increased, the barricading was besieged even more than it was on the previous afternoon. The result was that coppers to the amount of £14 16s. 6d. were taken for glasses of water. This sum and the previous amount named made a total of £19 13s. 1d. in aid of the Infirmary. Who, then, shall gainsay our statement that the Abyssinian pump has established for itself a lasting reputation in Leicester? Of the agricultural importance of this pump we may say, now that the land of this country has been so completely drained and ditches and water-courses been so thoroughly opened, that a great scarcity of surface water occurs, and will henceforth regularly recur, after a few weeks' absence of rain. A fortnight ago we were told that a grazier in Northamptonshire had to carry water eight miles to supply fifty oxen. The probability is that with this pump a good supply of cool water might have been found within the pastures on which the beasts were grazing. Who would have thought of taking cattle from the valleys of Knighton and Aylestone to drink on the Leicester Race-course? The expediency of doing so has, however, been demonstrated. Numbers of similar cases are now occurring throughout the country. In all these cases it would be advisable for the sufferers from want of water to put themselves in communication with Mr. Norton's pump agent.—*Leicester Journal.*

## AN IRISH LEASE.

The following is a copy of the lease offered by Mr. Scully to his tenants, and which, they having refused to abide by, led to the late murders in Tipperary:

"1. That he, the said tenant, his executors, administrators, or assigns, will pay the said rent to the said landlord, his heirs, executors, administrators, and assigns, at the time and times, and in the manner hereinbefore mentioned. And will also pay the entire of all poor rates and county cess, and all other rates, taxes, duties, and assessments whatsoever (quit rent and rent charge in lieu of tithes only excepted) now due, or hereinafter to become due or payable out, or in respect of, the said demised lands and premises, or any part thereof; and shall not make or retain or be entitled to or require any deduction or allowance whatsoever out of the rent aforesaid or otherwise from the said landlord, his heirs, executors, administrators, or assigns, for or in respect of such poor rates, county cess, and other rates, taxes, duties, and assessments, or any of them, or any part thereof.

"2. That the said tenant, his executors, administrators, or assigns, or any of them, or any person whomsoever claiming or deriving from, through, by, or under him, them, or any of them, shall not at any time, or in any event, have any claim, right, or title to, and shall not at any time or in any event claim to have, or be entitled to emblements, or any customary, or waygoing, or other crop, or proportion of a crop, which shall be growing upon the said demised lands and premises, or upon any part thereof, at the end or determination of this demise, or of the tenancy hereby created, or any right or benefit thereof, or any compensation therefor, or have or claim to have any right of possession, holding, or occupation of the said lands and premises, or of any part thereof, in lieu of emblements, or in lieu of the right to emblements, or of such customary, waygoing, or other crop, or proportion of a crop; any statute, usage, custom, right, or thing to the contrary in any wise notwithstanding.

"3. That the said tenant, his executors, administrators, and assigns, or any of them, will not cut down, lop, prune, or grub up any tree growing, or to grow on said demised lands; and will not cut down any hedge thereon, without properly guarding such hedge from injury. And that he and they will dig up or cut down all docks, thistles, and other weeds which shall be on said demised lands during the continuance of his demise before they go to seed. And that he and they will during the continuance of this demise well and sufficiently preserve, repair, and keep the said demised lands and premises, and the trees, fences, hedges, ditches, drains, watercourses, buildings, gates, and all fixtures and improvements, with the appurtenances

ances which now are, or at any time during this demise shall be erected or made, or shall be thereon, in good and tenantable order, repair, and condition, and at the end or determination of this demise, or of the tenancy hereby created, will quit and deliver up to the said landlord, his heirs or assigns, or to some or one of them, the possession of the said demised lands and premises, with the appurtenances, in like good and tenantable order, repair, and condition. And that on the 1st day of December, 1st day of March, 1st day of June, or 1st day of September which shall next follow the expiration of 21 days (Sundays included) from the service by, or on the part of the said landlord, his heirs, or assigns, or any of them, upon the said tenant, his executors, administrators, or assigns, or any of them, of a notice requiring the delivery to the said landlord, his heirs, or assigns, or any of them, of the possession of the said demised lands and premises, this demise, and the tenancy hereby created shall determine, and the said landlord, his heirs or assigns, shall be entitled to the immediate possession of the said demised lands and premises, with the appurtenances, and the said tenant, his executors, administrators, or assigns, or any person claiming or deriving from, through, by, or under him, them, or any of them, shall not, nor shall any one or more of them have any power, right, or option either at law or in equity to continue to hold or occupy the said lands and premises, or any part thereof, for any longer time, any law, custom, or thing to the contrary notwithstanding.

"4. That the said last-mentioned notice, and also any other notice under these presents, may be served upon the said tenant, his executors, administrators, or assigns, or any of them, either personally or by leaving the same at the usual or last-known place or places of abode in Ireland, of him, them, or any of them, or by posting same upon the door of a dwelling-house (if any), situated on the said demised lands and premises, or by posting same on some conspicuous part of such dwelling-house adjacent to the entrance thereto. And any notice which shall be so left or posted shall be deemed to be served on the said tenant, his executors, administrators, or assigns, within the true intent and meaning of these presents.

"5. That the said tenant, his executors, administrators, or assigns, shall not during the continuance of this demise, assign, mortgage, alien, demise, under-let, or set in consacre, or for any crop or crops, or bequeath or devise by will or testament, or by any codicil thereto, or in any manner dispose of the said lands and premises, or any part thereof, without first obtaining the consent in writing for that purpose of the said landlord, his heirs or assigns, signed by him or them.

"6. That the said tenant, his executors, administrators, or

assigns, or any of them, shall not, nor will, during the continuance or this demise, erect or make, or permit or suffer to be erected or made on the said demised lands and premises, any dwelling-house, or other house, building, hedge, ditch, fence, dyke, or drain whatsoever, except such as he and they shall from time to time be previously authorized to erect or make by the said landlord, his heirs or assigns, in writing signed by him or them.

"7. That the said tenant, his executors, administrators, or assigns, or any of them, or any person claiming, or deriving from, through, by, or under him, them, or any of them, will not burn, or permit or suffer to be burnt, the soil or surface of the said demised lands and premises, or any part or parts thereof. And will not kill, or break up, or change from grass, or permit or suffer to be tilled, or broken up, or change from grass in any one year, more than one—th part of the entire acreable contents of the said demised lands. And will not meadow, or permit or suffer to be meadowed, in any one year more than one—th part of the entire acreable contents of the said demised lands. And will during the continuance of this demise carefully and effectually protect and preserve all wild fowl and game of every

kind in and upon the said lands and premises, for the exclusive use and sporting of the said landlord, his heirs and assigns, and of all persons authorized by him or them to sport thereon.

"It is hereby declared and agreed that the said tenant, his executors, administrators, and assigns, paying all arrears of the said rent, and performing all the covenants and agreements herein on his or their part contained, shall also be at liberty to surrender this lease, and the possession of the said lands and premises, with the fixtures and appurtenances in good and tenantable order, repair, and condition, as aforesaid on any 1st day of December, 1st day of March, 1st day of June, or 1st day of September, in any year, upon giving a previous notice in writing of twenty-one days (Sundays included) to that effect, to the said landlord, his heirs or assigns, either personally or by leaving such notice at his or their dwelling-house, with any member of his or their family, aged 16 years or upwards, or with his or their servant, aged 18 years or upwards. And the said tenant hereby surrenders all former leases, agreements, proposals, and contracts of every kind, of or concerning the said lands and premises, or of any part or parts thereof. "In witness whereof, &c."

## TEXAS CATTLE DISEASE.

The *Prairie Farmer* contains a long account of this disease, from which we make the following extracts:

For a few years past there has appeared about this time of the year, in various localities in this State, Missouri, and Kansas some kind of a scourge among cattle, which has carried them off in quite large numbers. This disease has been variously called "Texas fever," "Spanish fever," "murrain," &c., and has, so far as has been known, followed in the track of freshly-imported cattle from Texas and the south-west. The disease has attracted so much attention, that each of the States mentioned has passed laws regulating in some, and forbidding in others, the traffic in Texas and Cherokee cattle. During all this time no careful or scientific description or diagnosis of the disease has been given, on which to base intelligent action or legislation.

The disease has heretofore been wider spread in Missouri and Kansas than in our own State, and the determined efforts of the people to prevent the introduction of these cattle by that route have induced the operators to find some other way to get their stock into the country. Hence the route by the Mississippi and Ohio rivers, to St. Louis and Cairo and points on the Ohio, thence by rail to interior points, has been chosen. Notwithstanding the recent law of our State forbidding the traffic in said stock, large numbers have been introduced by this route, and they have been scattered over a somewhat limited extent. But wherever they had been landed, the disease has appeared after a short time, and, of course, at once attracted the attention of all who were in any way interested in stock-growing, or who had the interest of the State in view.

So great, during the past two weeks, has become the alarm in infected neighbourhoods, and so formidable the threatenings of the disease, that the Chicago Packers' Association at once resolved upon arrangements for a thorough investigation of the disease.

The first shipment of cattle received at Cairo came up the river from New Orleans, and was landed the 23rd of April; the second lot on the 26th. Each of these lots contained 250 head. They were shipped from there to Tolono, where they arrived in good order and apparently in perfect health. Other shipments followed, in all amounting to about 1,200 head per week, average. As the warm weather came on, the cattle as they were unloaded from the boats showed more or less disability, the effects of disease, overcrowding, or injury. Occasionally a few animals would be left behind in shipping, too weak to stand the railroad journey. These were frequently turned out on the small range inside the levee, or perhaps traded off to the butcher. The cattle are unloaded from the boats, and placed in feeding yards at the depot grounds, where they are fed and watered, and allowed to remain from 24 to 36 hours. During the hottest weather, we were informed, it was not uncommon to find ten or fifteen dead in the yards in

the morning, and frequently many dead on the boats, where they are most mercilessly packed, often so close that they are obliged to make the whole journey of five or seven days, without being able to get water. The only wonder to us is that so small a per cent. died on the trip.

The citizens, whose stock has been scourged with the so-called Texas fever, allowed their cows free access to the same range the Texas cattle had been upon. The cows had also easy access to the feeding yards of the cattle in transit, when empty, where they picked up the scattering feed that was left. Nothing, however, was thought of it until June 1st, when a cow, belonging to a Mr. Bross, died quite suddenly. This was quickly followed by others dying in various parts of the city; but the deaths were not numerous until the last week in July, when one dairyman lost 16 out of 22 head; and others were affected and are doubtless dead ere this. Others lost, in many instances, their whole stock, and the total losses in the city were variously estimated at from 100 to 150, mostly milch cows. Without exception, so far as we could learn, every animal so dying had either been pastured on the range or had access to the feeding yards of the southern cattle.

Eighteen car loads of these animals were landed at Faria about the 10th of May, and ranged on the prairie west of the town, being herded at night in a fenced lot of Mr. Edward Richardson's, who had fifty head of native steers and a milch cow in the same enclosure. These Texas cattle remained there until about the middle of June, when they were shipped north, their number having been lessened by death—some twelve or fifteen head. The cattle seemed badly bruised and emaciated, and the deaths were generally attributed to those causes, rather than to disease. Matters remained in this state until about the 26th of July, when the cattle of Mr. Richardson and others of the village commenced dying. Mr. Richardson had lost forty-seven head of stock—all steers but one—and the residents of the village about half as many more, mostly milch cows, leaving many a family entirely without that great necessity, milk.

At Tolono, the crossing of the Great Western railroad, the larger part of the stock coming over the Central Railroad has been unloaded—in all some 15,000 head. These have been distributed among the large feeders in that neighbourhood, and some have been driven east from there to points in Indiana. As might be supposed, the scourge has been more extensive about here, and consequently increased excitement pervaded the community. As soon as the disease broke out, the owners of cattle that had been exposed on the ranges, or along the routes where they had been driven, became very naturally excited over the matter, and refused to allow some trains to be unloaded, which were consigned to that point. A vigilance committee was organized to carry out the order, but there was no need of it so far as the Central Road was concerned, be-

cause the superintendent stopped all shipments of stock from Cairo as soon as the facts above stated had transpired. But this did not stop the evil that had been done, as the losses of the native stock had become alarming. Up to Saturday night the committee reported 235 cattle dead at Tolono, with more dying every hour.

From this point east and south-east, through the townships of Sidney, Homer, and Philo, on the track of the Texas cattle, the course could readily be followed by the graves of native cattle along the route. Here we found the excitement at the highest pitch. A vigilance committee had been formed, and the proprietors of Texas animals waited upon in the dead of night, and notified to appear at a called meeting, and pledge themselves to pay for all cattle lost.

The disease seems not to be *contagious*, but *infectious*, as the native stock do not seem to have the power of imparting it to their kind, and calves may safely suck the cow after infected, and in one instance this has been known after the cow was dead, without apparent injury.

After the disease has become developed, which is known by the drooping head, arched back, hollow flank, "glarry" coat, laboured respiration, running at nose and eyes, dark-coloured urine, and, frequently, bloody discharges, there seems to be no help for the animal whatever. As soon as it is known that cattle have been exposed to the disease, they should at once be isolated from the rest, and treated to some purgative medicine, and fed on green, succulent food, like green corn, which treatment would probably have a tendency to overcome the disease.

There seems never to have been a more fatal disease in any country, according to the territory exposed, and we think that at an early day sufficient knowledge of it may be attained to enable the cause of it to be discovered, and intelligent and economic means employed to for ever keep it from our beautiful prairies.

That there should be excitement in neighbourhoods that have suffered, we do not wonder; but we would urge moderation in treating the matter by these committees, and no resort to measures other than those provided by the statutes, which might make still wider-spread disaster.

Without doubt the disease is of such a character, that when a complete knowledge of it is had, this class of stock can be handled with perfect safety under proper management and regulations. Meantime, while the investigation is being pursued, we would advise that nothing be done to move the stock now in the state from where it is, but adopt measures to keep it isolated, although we have little doubt that all injury that can be done by most of them has already been done.

An American correspondent of the *Times* writes on the same subject as follows: "The American public are having a very disagreeable sensation just now in the presence of a cattle disease which, though not the rinderpest that has afflicted Europe, seems to be equally fatal in its effects. This scourge is the Spanish or Texan fever, and it has been imported into the Northern States with herds from Texas. It first appeared in Indiana and Illinois a few weeks ago, and still rages in those States. During May and June, some 15,000 cattle were brought from Texas to Champaign County, Illinois, and driven by easy stages over the prairies, pasturing as they went. In less than five days, the native stock grazing on the prairies where the Texan herds had grazed were all sick or dead, while those grazing where the Texan cattle had not appeared remained healthy. In the first two weeks of the disease, 235 cattle died, after which the mortality increased, one farmer losing 55 out of 70 cows in a few days. No animal attacked seems to have recovered. The excitement in some of the diseased localities was so great that the farmers formed vigilance committees, to prevent the introduction of any more Texan cattle. Many of the animals found their way to Chicago, where they communicated the disease to the stock in the droveyards; and some of these infected cows were slaughtered and sold in the markets. The disease spread to the adjoining State of Indiana, where thousands of cattle are still dying from it. About ten or twelve days since, it was brought from the West on the railroads with Illinois cattle, and has appeared in New York, Pennsylvania, and Maryland. A drove of 200 cattle was forwarded by rail from Illinois to Pittsburg a few days ago, and, before reaching Pittsburg, 33 died, while 67 perished in the Pittsburg droveyards. Out of a smaller drove, ten perished. Of another lot, three cows only were left alive in one car on reaching Pittsburg. Many of the diseased animals, in whom the symptoms had not been developed, were transported over the Pennsylvania Railroad and sent to New York, where the disease made its customary appearance in the cattle-yards. While the disease was raging here, it also prevailed at Albany and Buffalo, in the northern part of New York State, and some farmers lost heavily. In New York city, as soon as the health authorities were made aware of the existence of the fever, a rigorous inspection of the cattle in the droveyards was begun, and all animals not in healthy condition were slaughtered. The Governor of New York has ordered an inspection of all Western cattle entering that State; and the Governor of New Jersey has issued a proclamation absolutely prohibiting the importation into New Jersey of cattle from the Western States and from Texas until further notice."

## AT WHAT POINT IN THE ROTATION SHALL WE APPLY OUR MANURE?

Some ten years ago I commenced farming, with all the enthusiasm and not a little of the self-conceit of "Young America." A very few years, I expected, would suffice to make our farm (which is mainly a sandy and gravelly loam of indifferent quality) produce crops that would be the astonishment of all the neighbours, if not of myself. I saved manure in all possible ways, and endeavoured to increase it by soiling and by composting with hundreds, if not thousands, of cart-loads of muck from a reclaimed meadow. Being heavily in debt for the property, my means were of course limited; but all the available surplus, amounting to several hundreds of dollars a year, was freely applied to the purchase and application of artificial and other manures. The bulk of the home manure was applied to the sod land the autumn and winter previous to breaking up for corn, while the purchased manures were mainly applied to the wheat. Sometimes these were so costly, or so ineffective, that the ground was scantily enriched, and two or three partial failures of the grass crop were the consequence. So passed half-a-dozen or more years, when I found, instead of the immense crops I had anticipated, with all my outlay of labour and money, that they only slightly exceeded those of my neighbours on similar soil, who took no special pains to improve, and did not equal the crops of those who were following, with but little expense, the beaten customary track of improvement in this vicinity.

I then did what I should have done at first. I observed the mode pursued by those farmers whose land improved most rapidly, and found that they invariably applied the great bulk of their manure to the ground prepared for wheat and grass—applying only lime and sometimes a little coarse straw manure to the sod for corn. Some apply their manure coarse, and some apply it fine; some mix it deeply with the soil, and some simply harrow it into the surface soil—all with good, though varying results. These questions—In what state or condition shall we apply our manure?—At what depth, if any, shall we place it in the soil?—although intimately, are not necessarily connected with the question under discussion, and I refrain from treating them at present. Their main object is to give a heavy coat of manure at that time, and the result is generally a heavy crop of at least the straw of wheat, and a very heavy succeeding growth of clover and grass.

My own experience and observation of the experience of others (in this section) have at last led to these conclusions: Take two fields of equal quality of soil, one thus manured when sowed to grass, the other not manured until the autumn previous to breaking up for corn; the first (if ploughed in two or three years from seeding) will produce about as heavy crops of corn and oats as the second, leaving the extra crops of wheat and grass as clear gain over the second mode of manuring. On the other hand, take two fields of equal quality of

soil, one manured previous to breaking up for corn and the other not, although the first will gain largely in corn and oats, yet when it comes to wheat and grass the difference will be scarcely perceptible. It would seem then that manure applied to the soil when laid to grass, manures it for the whole rotation of wheat, grass, corn, and oats; while manure applied to sod the year previous to breaking up, only manures it well for corn and oats, or about half the rotation—that is, manure applied in the first manner is about twice as effective as when applied in the second manner.

A different rotation would of course somewhat affect the result; but I withstand the temptation to enter on that subject at present, and, for the sake of simplicity, confine my illustrations and arguments to that rotation which seems the most common in our respective States—viz., 1st, Corn; 2nd, some spring grain; 3rd, Wheat; 4th, Grass. Whether the above conclusions are true to the full extent claimed or not, certain it is that the most successful farmers in this county, and, so far as I know, throughout the south-eastern part of this State, and adjoining sections, have the settled policy of applying the bulk of their manure to their fields when laid to grass. Not that they depreciate the value of manure when applied to sod land in the early autumn; on the contrary, they admit its almost wonderful effects on one or two of the succeeding crops, when thus applied, and would gladly secure enough for both applications. But they consider it of the first and highest importance that the ground laid to grass should receive enough to *secure* a heavy growth. Then the surplus, if any, goes to the sod land. And let me say in passing that the second crop of clover left to rot on the soil, or the coarse strawy manure that collects in the barn-yard after it is cleared for wheat is considered nearly as effective as strong well-rotted manure.

Well, so far is one statement of the case. On the other hand, it seems that a large number of the most successful farmers in your State are equally decided in their belief that spreading manure on their sod land during the summer or autumn, previous to breaking up for corn, is the most effective way in which it can be used. John Johnston says that one load applied in that manner is equal to two applied in any other way. F. of Orleans Co., after an experience of other methods, gives that his unqualified preference. And, on reviewing the back numbers of your Journal, since I became a subscriber in 1865, I find that the testimony preponderates heavily in favour of surface-manuring. (Hereafter, for distinction, I shall use the terms "surface manuring" and "mixing with the soil" for the two modes of application under discussion respectively, though neither term is strictly correct; some of the manure applied to the sod being eventually ploughed under, and some of the manure applied when seedling being left at or near the surface.) And on the supposition that you, the editors, have formed your opinion from the reports of practical men, I conclude that such has been the general testimony for a much longer time. Of course the advocates of surface-manuring admit, as we do, the benefits of all modes of application. But the case rests here: 'We maintain that manure mixed with the soil at the time of seeding to grass is the most effectively applied, and should therefore be the first object in manuring. They maintain that manure applied to the sod is the most effective, and should therefore be the first object; and each position is sustained by the long experience and earnest conviction of a wide circle of intelligent and successful farmers. Now, it is possible that one or the other position is an error; but the probability is that both are, in the main, correct, and that different circumstances have caused different modes of action and different results.

During a visit to your State last fall, I endeavoured to find a solution to this problem. So far as my limited observations went, they confirmed what general knowledge would lead us to expect, viz.: that two of the main circumstances in the case—soil and climatic influence—were widely different in the two localities under consideration. So far as I examined, the soil in your State certainly indicated far greater stores of plant food than in this locality. This we might expect; partly because much of it has not been so long cultivated, and partly because of the second great point of difference—climatic influence. That influence which in high northern latitudes causes deep beds of peat (at once the grave of past and the storehouse of future vegetation) to collect, must operate with a greater or less degree of force on all soils subjected to its influence, and

cause a greater collection of vegetable remains than would otherwise be the case. And not only that, but when such soils are brought under cultivation, the same influence prevents a rapid dissipation of those remains.

Far different is the case in lower latitudes. These organic remains pass so quickly into a gaseous or soluble form (fitting them to be readily washed or evaporated away), that they do not, as a rule, collect in quantity in the soil. Those crops of corn, with stalks a dozen or more feet in height, witnessed by a committee of the American Institute Farmers' Club, in New Jersey, do not alone indicate so much plant-food drawn from the soil; they are an exponent also of the great waste of plant-food which the climate is continually producing, and which our crops, especially when under cultivation, can only partly utilize. Here, then, if I am so far correct, are two very different circumstances under which the manure has to act. On the one hand a large natural store of fertility in the soil, and a climatic tendency to conserve that fertility; on the other hand a small store of fertility in the soil, and a climatic tendency to dissipate that store.

How do these different circumstances affect the two modes of applying manure, under discussion? Manure, applied to the soil, acts beneficially mainly in three ways. First, it acts directly by supplying the soil with plant-food. Now I suppose that in a surface-dressing, applied in a proper time and manner, there is nearly as much of the fertilizing principle of the manure conveyed to the land, as if it were at once mixed with the soil. What little waste there is, however, is doubtless greater in a soil which naturally dissipates plant-food. But the greatest difference on this point, I apprehend, lies here. When the manure is applied at the time of seeding, the ground lies undisturbed, and generally coated with a dense vegetable growth for several years—conditions the most favourable for utilizing the whole strength of the manure. On the other hand, when it is applied to sod land, it is generally broken up within a year, and subjected to cultivation and summer's sun and showers—conditions the most favourable for waste of manure. On the whole, then, we must decide that as far as direct manurial action is concerned, a warmer climate strengthens the argument in favour of the first, and lessens that in favour of the latter mode of application.

Secondly, manure acts by decomposing or rendering available the plant-food already in the soil. And here, I suppose, lies the main argument in favour of surface-manuring. An article by "F." in your issue of May 9th, 1867, goes far to prove that in most circumstances the fermenting-power of manure, when mixed with the soil, must be very slight; whatever power there is, however, would certainly be at its greatest force in a warm climate. On the other hand, the evidence is conclusive that any top-dressing, be it stone, boards, or manure, does, through some not wholly explained cause, render available much of the plant-food beneath it. Of course a soil must contain a considerable quantity of latent plant-food to render this mode of action very potent. Thus, again, the circumstances of a warmer climate and poorer soil lessen the argument in favour of surface-dressing, and strengthen that in favour of mixing manure with the soil.

Lastly, manure acts beneficially by causing the growth of plants, which, like clover, enrich the soil. And here, I think, lies the strongest argument in favour of mixing manure with the soil at the time of seeding. Stern experience has taught the farmers in this vicinity that only by a heavy coat of manure at that time can we ensure a good growth of clover. I cannot conceive how a coat of manure, applied during the last year of its growth, when it is partially enfeebled or run out, can, under any circumstances, secure so great an amount of roots and stems, as the same manure applied at the commencement of its growth. However that may be, this much I think, we may claim for certain—the less the amount of plant-food in the soil, and the less favourable the climate to the growth of grass, the more necessary is it to apply manure at the time of seeding. Thus, for the third time, the circumstances of a warmer climate and poorer soil strengthen the argument in favour of mixing the manure with the soil when seeding to grass, and lessen that in favour of top-dressing the sod-land.

Again, I have the impression (which I have not just now the means of verifying) that, as we go southward in our country, a greater and greater proportion of the land becomes sandy or loamy in its character. Such soils contain naturally

less plant-food, and part more readily with what is imparted to them than soils of a heavier character. Hence, if my impression is correct, it adds another to those circumstances which favour, in more southern latitudes, the application of manure when seeding to grass.

I think that I have now shown that different circumstances, even in localities no more widely separated than our own, would materially alter the results obtained in manuring our land. And I repeat that I think it probable that such circumstances are sufficiently powerful to cause one mode of manuring to be the best in one locality, while another mode is the most effective in another locality. If I have drawn attention to these varying circumstances, it is all that I aimed to do in the present paper,

But I said also that it is possible that one or the other position is an error; and if in some future paper I attempt to give colour to this possibility—if I endeavour to show that the advocates of surface-manuring, in their warm appreciation of the great immediate effects of their favourite plan, may have overlooked the greater ultimate effects of another mode—I will only be doing what I shall heartily thank any of the able pens among your correspondents to do for the advocates of mixing manure with the soil at the time of seeding to grass; for I hold it as a maxim, that truth is ever more forwarded by a sincere opposition than by an exact concurrence of ideas.—*Bucks County (Pennsylvania).—Correspondent of The Cultivator.*

## THE CONDITION OF THE AGRICULTURAL LABOURER.

At the recent meeting of the British Association at Norwich, Canon GIRDLESTONE read a paper on the "Condition of the Agricultural Labourer, especially in the West of England," and of which the following is a summary:

The progress of manufacture, so far from lessening, has rather increased the value of land. Fortunes made in manufacture are generally invested in land. Skill acquired in manufacture is applied to land. Great Britain retains, and is likely always to retain, its character as an agricultural country. Landowners occupy the highest positions and enjoy the greatest social privileges. Public opinion, the reform of universities and public schools, the facility for foreign travel, and the admixture of the manufacturing classes with the old landed proprietors, have much raised the character and improved the tone of these last. Still, specially in the West of England, there are many of the old school remaining, who resist all progress. The race of farmers also is much improved, but not so much in the West of England as elsewhere. The land is also much improved; a larger acreage is brought into cultivation, and each acre is made to yield more. In this respect, also, in the West of England there is less improvement than elsewhere. Nowhere has the improvement of the agricultural labourer kept pace with that of the landowner, the farmer, and the land itself. In the West of England the condition of the labourer is very little improved, and in some respects is worse than it used to be. Wages are low; fuel and provisions dear; education has become a necessary of life for a family; the Poor Rate is so administered as to quench every feeling of independence. In the West of England an agricultural labourer had till lately only 7s. or 8s. a-week, and now only 8s. or 9s. Unless he is a horsekeeper or a shepherd, he has to pay out of this from 1s. to 1s. 6d. or more a-week for house rent, and provide food, clothing, medical attendance, fuel, and every other necessary for himself, wife, and family. Potato-ground he pays a high rent for, and fuel he seldom gets, except at the cost of as many hours of hard work in getting it as its full value. He has three pints or two quarts of cider a-day, and has a portion of his wages often paid in quit, which, when corn is dear, is an advantage, but otherwise a loss to him. He is often not allowed to keep a pig or poultry, for fear of stealing food for them from his master. He works nominally ten or ten-and-a-half hours a-day, with an hour-and-a-half deducted for meals. He is almost always, however, in reality kept a much longer time than this, and is seldom paid anything for overtime, except by bread-and-cheese in harvest time. Women get 7d. or 8d. a-day for outdoor work, with a quart of cider, and boys small sums in proportion. The men breakfast before they leave home on tea-kettle broth, which consists of an infusion of bread-and-water, with a little milk, if, which is not often the case, it can be got. For luncheon and dinner, which they take with them, they have coarse bread and a little hard, dry skim-milk cheese at 3d. per lb. For supper, on their return home, they have potatoes or cabbage, with a very small slice of bacon sometimes to give it a flavour. Butchers' meat they seldom see, except it is given to them. They are unable to lay by anything, and few comparatively belong to benefit societies. They are long lived, but even in their prime are

feeble, and at the age of fifty often crippled with rheumatism, the result of poor living, sour cider, a damp climate, hard work and anxiety combined. There remains nothing for them then but parish pay and the union. There are many exceptions to this general rule, often even in contiguous parishes, owing to the presence of an intelligent resident landowner, or the immediate neighbourhood of a large town, mines, or manufactures. In other parts of England the rates of wages differ much. The wages of the agricultural labourer are always higher in the neighbourhood of towns, mines, and manufactures. I have sent more than 100 labourers from my parish of Halberton and other parts of North Devon into Bedfordshire, Cheshire, Derbyshire, Durham, Glamorganshire, Hampshire, Hertfordshire, Kent, Lancashire, Shropshire, Surrey, Yorkshire, more than half being married men with families, at wages varying from 12s. a-week the lowest, with house and garden rent free, to 20s. a-week with house and garden rent free. In all cases the house and garden were rent free, and in some cases there was beer, fuel, and potato ground, one or more, given in addition. The single men whom I have sent away are getting from 6s. to 8s. a-week, with board, lodging, and washing. From the above statement it is clear that the condition of the agricultural labourer is in different parts of the country very different. But notwithstanding statistics, which in this, as in the case of education, are very deceptive, and general statements made by persons of no experience, the fact that in agricultural districts the poor-rate is very high, that there are more marks than signatures in the marriage registers, that recruits from the same districts are seldom able to read or write, that our prisons are filled from the same districts, and the general conviction that agricultural labourers are wholly unfit to be trusted with the franchise, are real and reliable evidences of the low condition of this class of men. That which is really required for the agricultural labourer is, in one word, independence. At present he is the most dependent of any class of labourers. In order to do this: *First.* Good wages, in proportion to quantity and quality of work, but always in the case of an able-bodied and industrious man enough to keep him and his family, with a margin for insurance against old age and sickness, are required. *Secondly.* Also well-drained and ventilated houses, with at least three bedrooms, and all other appliances for decency, with a provision also against taking in lodgers; such houses to be in the control of the landowner rather than the farmer. *Thirdly.* Greater facilities for education; even a penny a-week for each child in a large family is a heavy tax on a very small income. The temptation held out by the farmers of a few pence for boys to keep birds and do other child's work is too great for the poor labourer to resist. No child should be allowed to work till he can read and write well, and has a fair knowledge of the first rules of arithmetic. *Fourthly.* All mops and hiring fairs should be abolished, and a good system of registration be generally adopted and made known through the instrumentality of the penny papers throughout the country. *Fifthly.* Agricultural labourers' unions, of a strictly protective character, and well guarded against intimidation to either employers or fellow-workmen, might be formed with advantage. The whole system of

unions is not to be condemned because of the outrages committed by a few. All professions, all trades, even landowners and farmers in their chambers of agriculture, have their unions. Why are agricultural labourers alone to be left to struggle hopelessly, because singly, while all others are combined? *Sixthly*. There should be legislation in favour of the agricultural labourers, specially as regards education and the administration of the poor-law by a central board of disinterested officers, instead of by a local board of landowners and farmers. Legislation so far has done less for this than for any other class. Landowners and farmers have a special pecuniary interest in the improvement of the agricultural labourer. The clergy have a spiritual interest. All bread-winners ought to help him to raise himself to the same independence to which all except he has attained. All I can do is to co-operate with any persons who are willing to take this good work in hand, or failing our attempt thus to carry the work out on a large scale, I must content myself with carrying it on in a small way in my own immediate neighbourhood.

The paper created an unusual degree of excitement, and the opinions upon many of its points were very varied, sometimes cheers greeting the author, and at others cries of "No, no," and other indications of disapproval.

Mr. WILKINSON, a farmer of Herefordshire, in opposition to the opinion expressed by the Rev. Canon, advanced the opinion that the demand for farms was not a correct or fair criterion that farmers were doing thoroughly well, as there were other causes which operated in applications being made for farms.

Capt. GRIFFITH JENKINS said no one could be more disappointed than he had been with the paper. He had read the writings of the Rev. Canon, and knew what he had been doing, and that his heart was in the right place; but there were some occasions when the brain did not do quite as they would wish. He entirely disagreed with the statement of Mr. Girdlestone that the agricultural labourer was in the condition of *serfdom* (cheers).

Mr. BOTLEY answered that the rate of agricultural wages had been underrated by the Rev. Canon, and that taking piece-work, harvest-work, and perquisites into account it would amount to an average of 18s. a-week.

Mr. WILSON advocated the introduction of the principle of co-operation in farming, so that labour might have a certain practical interest in the production of the soil.

Sir W. JONES thought the Rev. Canon had spoken in a rather provocative manner of the landed gentlemen (cheers and cries of "No, no"). He did not justify the payment of such small wages as 8s. or 9s. per week, and as to the suggested payment for overtime, that already existed in Norfolk, the labourer being paid threepence an hour for such work. Part payment in kind did not exist in his neighbourhood, but the labourer received his wages in money. With respect to cottage accommodation he admitted that there should be three bedrooms in a cottage, so that the separation of the sexes might be complete; but the average in Norfolk was only two. Everyone was doing what he could to meet the defect which existed, and until what was required was accomplished, he suggested that the sons of the labourer should sleep in the sitting room of the cottage. He entirely differed from the Rev. Canon's opinions upon lodgers, believing that if they wished their labourers to be decent, respectable people they must not drive them into matrimony at the age of eighteen, which they would do if they had not the opportunity of taking private lodgings; or else the public house, the evils attending the lodging at which were well understood, would be resorted to (applause). He believed the real solution of the labour question to be the building of a certain number of cottages on every estate, and so arranged it would be possible for young men to be "taken in and done for"—(laughter)—by old people, as lodgers, and not to be compelled for the purpose of getting their food cooked, or their clothes washed, to be married at the age of twenty. Sir Willoughby then spoke of the system upon which cottages are let in this country, and to the character of the education possessed by the agricultural labourer, whose education was not what it should be, but was such as gave hope for the future. In this county leases, and good long ones, were given by landowners. As to the wages earned, he might say that the week before last, he paid his harvest wages, and they amounted to £7 in cash, which were earned in fourteen days, and added 3s. per week to the

ordinary earnings, which he had paid in his district, corn being very high, 13s. per week, besides overtime and task work being paid for at the rate of 15s., per week (applause). After contrasting these earnings with the wages paid to carpenters and bricklayers in country places, the former receiving but 18s., and the latter only £1 per week, although one had to find expensive tools, and the other was unable to work in frosty weather, Sir W. Jones pointed out that the agricultural labourer was mostly employed throughout the winter, and concluded by saying that the real evil consisted in the existence of so many beer shops, and that if this evil could be got rid of they would have in Norfolk a thriving, a prosperous, and a most improving body of men in their agricultural labours (loud cheers).

Dr. CRISP took exception to a great deal Mr. Girdlestone had said, and attributed the degraded condition of the agricultural labourer simply to the want of education ("No, no," and cheers).

Mr. C. S. READ, M.P., replied to several points raised by the Rev. Canon. Alluding to some strong personal remarks made by Mr. Girdlestone on the landed and farming interest, the honourable gentleman said he had always found that whenever a talented speaker was about to say anything very hard about his opponents, he always prefaced his remarks by saying that he had a great amount of respect for that individual (laughter and applause), and Canon Girdlestone was no exception to this rule. Mr. Read, after quoting opinions upon trades' unions in antagonism to those advanced by Mr. Girdlestone, proceeded to bear out the statement of Sir Willoughby Jones as to the wages of agricultural labourers in this county, and he advocated the adoption of task-work, for the true principle of co-operation was to give the labourer a direct interest to do his work. He believed, with respect to the labourers of Devonshire that they were only paid what they were worth; and in answer to an interruption "Give them more money and they will do more work" said, "Let them do more work and they will receive more wages" (cheers). With respect to what the Rev. Canon had said about the labourer being a *serf* and being tied down, of course in every station of life a man with a wife and children is encumbered (loud laughter), and is more or less tied down to one locality, and that locality his home; but the young agricultural labourer by giving up his beer and tobacco for three months, would be able to go from John O'Grat's house to the Land's End (applause).

Mr. CORBRANCE, M.P., said that the question under consideration was part of a large question, and that it admitted of expansion to an almost unlimited extent. Although he agreed with the Canon on many important points, he still must express his regret that it was brought forward in a manner which seemed to him scarcely scientific enough to meet the requirements of the time and place, but was rather of the nature of a popular address.

Dr. HODSON made a reply to the Rev. Canon, which was received with loud cheers. He complained of the speaker's want of appreciation of economic science, and clearly pointed out his unacquaintance with political economy. He also showed that some of the suggestions of Mr. Girdlestone would destroy that independence which he himself desired to see secured to agricultural labourers, because the lodging prohibition would curtail his freedom of action, and trades' unions undoubtedly set themselves against piece-work and overtime (cheers). In conclusion he traced in some measure the cause of the present condition of the agricultural labourer to class-legislation, and to the law of settlement.

Sir JOHN BOWRING spoke in praise of the movement which Mr. Girdlestone had inaugurated.

**CURING RENNET.**—Orrin Johnson writes the *New Hampshire Farmer's Record* about curing rennets. He says they ought never to be dried inside out. He adds:—"When taken from the calf, put a handful of fine salt into it, lay it aside for a week or more—they will not hurt—then stretch them on sticks, not turned inside out. When taken off the stick, see that both ends are tied or closed up tight. Keep a year's stock beforehand. I think one cured in this way is worth two dried inside out."

## THE RED-CLOVER PLANT.

At a meeting held by the Brecon Chamber of Agriculture, Mr. DAVID DOWNES, Maesmawr, read the following paper:—  
 Mr. Chairman and Gentlemen—However inferior an individual's talent may be, and however trifling may be his amount of knowledge respecting a subject, yet I consider that that talent should be employed, and that that little information should be utilized for the benefit of others. It is upon this principle I am acting in bringing before you for discussion and elucidation, the partial, and in some cases the total failure of the "red-clover plant" in this county. From conversation with, and information reported to me from others of the farmers, I find that during past years this failure has been a source of great anxiety and loss to them. As one remarked, "I now frequently do not mow 5 cwt. to the acre, whereas formerly I harvested 1½ ton, or even more from that quantity of ground. The deficiency is more especially felt by me in horse keeping during the winter months." I can recall the time when, riding along the highways and byways, seeing fields uniformly covered with the red blossom of the clover; and not only seeing, but enjoying the perfume, and the music of the bees (honey laden) returning to the hive. Can you say the same now? Perhaps here and there in a field a red patch of various size and dimension, the remainder of its produce composed of white Dutch, a little trefoil, but most luxuriant of all the ryegrass; and I am sure you will pardon me when I add, not a few thistles and docks are occasionally to be seen. It has been well and truly said, that if plants ceased to grow, animals would cease to live; and as the red-clover plant is of great importance to every farmer, however large or small his holding may be, it is a worthy subject for discussion in this Chamber. The other day, at an anti-malt-tax meeting in Suffolk, if I recollect rightly, one of the speakers stated that Sir Robert Walpole, with respect to taxation, had said "The farmers bore shearing like their own sheep." Certainly such was the case formerly; but now, owing to farmers' clubs, their ideas are expanding; they are deserting the old beaten track; there is more union as a class; they are endeavouring to throw the weight of their shoulders, and have opened their mouths to proclaim their wrongs and assert their rights (applause). They are awakening out of their slough, and are inquiring why such and such a thing should be? What is the remedy, and what must be done? But to the return to the subject: I have seen it asserted that red clover is a native of this kingdom; others again say that it was originally brought from Germany, or Europe somewhere. Whichever opinion may be right will not affect its cultivation or failure. White clover is certainly of the soil of this country, and not imported, though grown extensively abroad. Clover of all description is allowed by all to withstand the effects of very dry weather (either on light or clay soils) better than nine-tenths of pasture grasses; and this property gives it additional value. Of all clovers, the broad-leaved produces more, and has more nutritious qualities than any of the others in the proportion of three to two. I will now give you the composition of white and red clovers as analyzed by the chemist Crome, taking a 1,000 parts as the basis:

	White.	Red.
Starch .....	10	14
Albumen .....	15	20
Gum .....	34	35
Sugar .....	16	21
Woody fibre .....	115	139
Wax and resin .....	2	1
Earthy matter .....	8	10
Water .....	800	760

The "Gens" I shall omit, as I know from previous reports in the *Hereford Times*, they are not palatable to some of the members. Next I will bring forward before your notice three fields as observed by myself, numbered 1, 2, 3, with their practical working, cropping, manuring, depasturing, &c. I may almost assert that during the course of three years I have daily walked over them and made observations. No. 1 field was in the year 1863 a wheat stubble and ploughed up to

the depth of from 4 to 6 inches almost immediately after harvest, with no top-dressing of any kind. One ploughing afterwards in the spring '64, with harrowing and scuffer run through before it was furrowed for turnips. Manure on one-third obtained from Dowlais Co.'s stables in a rotten and black state, about 14 cart loads to the acre, with but little ammonia as I could judge remaining in it; the remaining two-thirds with farm-yard manure, ashes, and earth mixed with manure, about ten loads to the acre. The turnip-seed on the whole of the field did not germinate until the fifth week of sowing, owing to the drought, though sown early in May. The plants fairly regular, but much infested with fly, more especially on that with the Dowlais manure; in fact, there were double the destructive insects to the other portion of the field, as watched daily through a magnifying-glass. There was a very moderate crop over the whole field. The swedes on Dowlais manure were carted to the stalls, and the other portion consumed on the land by sheep hurdled loosely, but not penned. The field was ploughed and cross ploughed in March '65 for barley, and sown with the usual seeds to a larger extent than usual. There was a good crop of barley on the field, more especially on that portion which had been manured with farmyard dung, and particularly where the sheep had been lying during the snow and frost; in fact, too heavy a crop for profit, as it was laid. The clover was luxuriant after the barley had been mown, but weak in stem. It was depastured with calves, sheep, and three or four colts, when weaned from their dams. The clover (red) entirely disappeared in this field in the month of November, and, with exception of white Dutch and ryegrass and nine sorts of weeds natural to sandy soils, not a hundred roots of red clover remain. The surface soil is to the extent of eight inches or so a sandy loam, with a subsoil of pure sand to the depth of three feet and more. In March '66 I forwarded a sample of the earth to Professor Church, R.A.C., Cirencester, for a qualification analysis, and the following is the result and his opinion: "Organic matter is present in the soil in small but probably sufficient proportion. Nitrogen is more abundant than is usually the case with soils of this class. A considerable part of this nitrogen is available for the use of the clover plant. Potash is present in small but probably sufficient quantity. Alumina and oxide of iron are present to a large extent (not the least doubt, as the yellow-ochre colour at the mouths of the old drains prove it). Silica and insoluble silicate constitute the main bulk of the soil. Phosphoric acid would appear to be almost, if not altogether absent. Sulphuric acid exists in the soil only to the amount of .027 per cent. (so in letter). Mr. Church is of opinion that the deficiency of phosphoric acid is the most serious defect of the soil. A further supply of sulphate of lime and potash may, however, be of benefit. If there were clover plants remaining, he likewise recommends a top-dressing with superphosphate, mixed with about quarter of its weight of chloride of potassium." No. 2. We will now take this field, which is of a light, alluvial, garden soil, of a cultivated surface depth of about 10 inches, and beneath mixed gravel and sand, of which the measure is not known. In the autumn of 1863 it was sown with winter vetches, having previously been cropped with wheat, and a very good crop too. The vetches were consumed in the stable by the cart-horses. About the first week of May '64 it was ploughed in to the depth of six inches, and then scuffed and harrowed four times; the couch grass collected, and burnt in small heaps over the field. The turnip seed (swedes) was drilled in the second week of June, on manure, about ten loads per acre, obtained from the company's agent at Dowlais; though not so putrid as that in No. 1 field. A very good weight of turnips, and all carted to the feeding stalls. The barley here was about seven loads to 2½ acres, and the clover at the time strong and luxuriant. Cart-horses, and cattle principally, fed on the clover here. I should think a third portion of the red clover plants remains now. Permit me here to state, from close observation, the manure from the Hill Works, taking cost and carriage and conveyance from railway station, does



not answer on the arable land here, more especially as its productive effects are exhausted the first year. On pasture land I think it pays well in its rotten state. Three acres of a dry, gravelly, sandy bank, were dressed in March, '85, with it, and brush harrowed. It produced double the quantity of hay usually obtained from that piece, and the pasture continues looking flourishing, with a large proportion of perennial clover, the seeds of which must have been in the dung. In an adjoining field, on like soil, it was applied in a half rotten state, and no benefit derived. From this, I judge practically, half-fermented manure is best for arable, and perfectly rotten for pasture here. On the two fields numbered 1 and 2, during the month of October, 1865 (the latter end), a heavy blight or mildew fell. It seemed as if the fields had been sown with flour, and, very soon afterwards, the leaves of the clover plant gradually disappeared. A few leaves examined under the microscope exhibited the appearance of white dust; on others there were stars and other figures, formed by insects, similar to cheese mites, though not nearly so large; and on others something very like the "red rust" in the ears of wheat. On the 2nd day of April, 1866, during fine showery weather, on field No. 3 (two acres having been marked out) 3 cwt. per acre of "sulphate of lime," obtained from "Messrs. Proctor, of Bristol," was sown broadcast. In the course of 22 days the pasturage was from an inch and a-half to two inches higher than the other portions of the field, and when mown the haycocks were as three to two. We will now proceed to No. 3 field, with an eastern aspect, on high sideland ground; the surface of which is, or may be termed, a "stony brash, with a substratum of a greyish sandstone, which becomes brownish after it has been exposed to the action of the air. The cultivated surface soil varies from four inches to a foot and more, in fact is very uncertain. As to the subsoil I cannot venture to guess the depth. In a quarry in an adjoining field, 12 to 14 feet have been exposed, and the lower you go the harder and purer the stone. In the autumn of 1862, this field was sown with vetches, which totally failed, and wheat succeeded in 1863. Lime and manure from the farm-yard were applied during the time it was lying fallow—a very poor crop of wheat, about 14 bushels to the acre. The stubble was ploughed up and then cross-ploughed in spring, and well harrowed before the land was furrowed for swedes, the last week of May '64, with 4 cwt. of superphosphate per acre, sown broadcast. They were eaten by sheep hurdled loosely, and turned in about the latter end of October, or first few days of November. The sheep droppings were not ploughed in until the following March, when it was broken up twice before the barley was sown, and worked well. The barley was light, but clover abundant. Very little of this was to be seen after the winter, though it had been depastured solely with sheep. I may say that the number of plants are very limited now. The mildew affected this field in much lighter proportion than the two fields on the flat. Taking the three fields together, I must say that I scarcely ever saw cleaner crops of turnips, and if cleanliness is an aid in any way to prevent the disappearance of the clover, there should have been now an immensity of plants. With your permission, I will state how I would cultivate these fields, at a future period, after a cereal crop, for the better staying of the clover. No. 1 I would plough up as soon as possible in October, or early in following month, to the depth of 10 inches, so that two inches of the subsoil should be brought near the surface and intermixed. Lime rather heavily and well harrow to incorporate both lime and soil, and leave it to be aerated during the winter months. (Mr. Church, in my opinion, is mistaken as to the amount of lime throughout this field (No. 1), but perhaps perfectly correct in his analysis of the soil forwarded, as unfortunately it was gathered from two spots, instead of a dozen portions of the field.) Apply fourteen cart loads of half-fermented farm-yard manure with the turnips per acre; top-dress clover with 2 cwt. of sulphate of lime and 2 cwt. bone phosphate, mixed. Roll afterwards with a smooth iron roller 4 feet in length and 2½ in diameter, as by such a roller almost all the inequalities of surface are compressed. No. 2 I should plough a foot deep, and lime lightly. Before furrowing for turnips sow broadcast 2 cwt. per acre of salt. If necessary top-dress clover in spring with gypsum. As No. 3 has been limed lately, though injudiciously, and always dosed with phosphates, biphosphates, and different turnip manures, I should consider deep cultivation, as far as possible, with a large quantity of dung

well incorporated, most beneficial. I should top-dress here with phosphate and chloride of potassium, adopting a suggestion of Professor Church. For clover I consider the following essentially requisite in this vale:—Deep cultivation, as a root has been known to penetrate downwards two feet. In an agricultural journal I have read of a parsnip which extended its tap-root to the extraordinary length of twelve feet in an old quarry which had partially been filled up; likewise the root of a wheat plant, eighteen inches long. Then comes "rolling" in the month of November, with a very heavy iron roller, as already described. You are all well aware that near a gateway on land over which the waggons have continually passed whilst cutting the barley, the clover has vigorously flourished, although that on the rest of the field has entirely disappeared. On light sandy, gravelly soils, I advocate the rolling in of the stones lying on the surface, instead of gathering them and conveying them to the road. They retain warmth, prevent evaporation, and harden the ground around the roots by compression. The very large stones I should remove. A Scottish farmer, in the Lowlands, had a very stony field, and set hard to work to clean them off, but soon found out his mistake, as afterwards his crops of clover diminished one-half. This was related in the "Journal of Agriculture of the Highland and Agricultural Society of Scotland." From what I have seen, rolling is little practised in this county, and, if at all, with wooden rollers of too little weight. Now, for gypsum, or sulphate of lime, which is absolutely essential for clover. It is not a stimulant, but the natural food for its sustenance. Sir Humphrey Davy found that every fair crop carries away from three to four bushels of gypsum. The composition of sulphate of lime, when pure, taking a 100 parts as basis, contains—

Sulphuric acid .....	43
Lime .....	33
Water .....	24

In its native state it contains a portion of silica and carbonate of lime. A Mr. Peters says they have a simple way of trying gypsum in America. They put a quantity of it pulverized into a dry pot over the fire, and when heated it gives a sulphurous smell; if the bubbling or boiling is considerable, they think it good; but if it remains quiet, like sand, it is thought very little worth. It neither promotes the decomposition of the organic matters of the soil, nor like those decomposing substances does it furnish the gases of putrefaction for the service. Red clover, lucerne, and sainfoin are, in fact, the only three commonly cultivated crops which contain gypsum in a considerable proportion, and turnips in a smaller quantity. The proportion of sulphate of lime found in these plants cannot but be as necessary to their growth as the presence of the other earthy salts and pure earths. The weather at the time of sowing it has a very material effect upon the result. Its effects are never soon apparent when sown in dry weather, and sometimes not seen at all; but if the period is moist, so that the white powder adheres to the leaves and stalks of the young clover, the good effect is then almost immediate. This is the experience of clover growers on the gravels and loams of Surrey and Kent. They dress with 2 cwt. per acre. It is not absolutely necessary for a farmer to have his soil analysed to determine the probable advantages of applying gypsum to his clover. Thus when he finds that those fields which once produced luxuriant crops of red clover will no longer yield them abundantly. If he notices that the young plants spring up very numerous, but die away as the summer advances, if he finds that his fields will only grow clover once in seven or eight years, and his neighbours tell him that his land is clover sick, he may then safely conclude that in fact the land is deficient in its requisite food, and has exhausted all the sulphate. It is the cultivator who is tired of adding the necessary fertilising ingredients to it, or won't take the trouble to inquire of what those deficient substances are composed. Gypsum is allowed by English, American, and farmers on the continent as principally adapted for light, hot sand, and loamy soils. It has been found useless when applied to heavy lands, or to those on which stagnant water rests, as gypsum is soluble in water. Clover manured with it is very generally preferred by horses, and other cattle to that not dressed with it, as stated by the late Mr. Henry Smith, of Hightstead, near Sittingbourne. I observed the same here on the two acres dressed April, 1866, with respect to some of the animals, as they stuck to that alone. It is not clearly

known what gives this relish, for the chemist has not yet definitely solved the mystery. From its increasing strength, greenness, and richness, that a great portion of something is by degrees absorbed by the plants, when manured with gypsum, is a self-evident fact. The Americans spread a small quantity as soon as the clover springs up. They think the best time to apply it on clover when sown with barley, is as soon as the corn is mown. The Americans sometimes even mix the cloverseed with the gypsum. The Flemings and Germans have used it with great success for many years. A Prussian nobleman (I believe now dead) near Berlin, who farmed largely in 1837, a sandy soil, too light to grow wheat, stated that with the aid of gypsum he could raise clover, but not without. He sowed barley and clover on the ground and consumed with sheep. In Glamorganshire on a brashy stiff sandy loam, manured with it about November, and rolled soon afterwards, the effects were good. On this farm here, 18 acres were sown with sulphate of lime, on the 30th October, 1866, during fine showery weather (3 cwt. per acre), obtained from Messrs. Proctor. The clover looks well after the frost, and was rolled Feb. 1st and 2nd, 1867, with a wooden roller, but much too light, as it did not flatten the ground. During this summer the benefit or non-benefit will be seen. I will now state other remedies, as recommended by practical farmers. Some are in favour of three bushels of salt to fifteen of ashes per acre, to be used beforehand, with turnips. Others advocate bones and sulphuric acid—the amount, practically speaking, an undecided question, but, taking the medium, about four bushels per acre. Others recommend lime to be applied in the autumn in a moderate quantity on the stubbles, before they are ploughed up for turnips; likewise—a good preventive for finger-and-toes in the turnip-crop—very many coal-ashes as a top-dressing. Taking 100 parts (that is, if they are kept under cover), they contain ten per cent. of sulphate of lime, ten of lime, the other portion chiefly sand, a small portion of red oxide of iron and alumina. Mr. Scoffer, in his book ("Chemistry of Soil") says: "Perhaps no occupation in life involves such a number or such a variety of chemical agencies as agriculture; yet in none dependent on chemistry has the science been so much neglected. Not having an intimate acquaintance with agricultural pursuits, the chemist has not always been able to contribute the aid required from him." As the prices of land and rents are gradually advancing, the tenant-farmer must to a great extent rely on these agencies; otherwise, I do not see how he is to pay his rent. Like steam thrashing machines, the steam plough must also come into general use. Professor Voelcker states that the subsoil contains vastly more mineral agents of fertility than the surface-soils, and for this simple reason—that the plants do not go into the subsoil, on account of its bad physical condition. This is a grand reason why we should no longer wonder at the gradual failure of the clover and other crops, which find an empty cupboard where they ought to find a full one. Baron Liebig, in his "Principles of Agricultural Chemistry," observed that all the attempts of Messrs. Lawes and Gilbert to grow clover continuously, by heavily dressing the surface-soil with various manures, failed, because those manures never reached the subsoil, or feeding-ground of the clover-roots, the top-soil having arrested and fixed or appropriated those manures which ought really to have been buried and intermixed with the poor subsoil. In a rich old garden, where the subsoil had been long and well fertilised, Baron Liebig could grow red clover annually. It is most probable and possible that only enough of the manures applied to the surface reaches the subsoil in eight or twelve years, so as to enable the farmer to take a red-clover crop once during that period. As a rule, the young clover-plant thrives well until in the spring, when its roots descend to the subsoil; and then it perishes for want of proper nutriment. I could have written more fully on the subject; but, knowing that farmers generally like a "short sermon," pithy and to the point, I have endeavoured to be so here. There may be slight inaccuracies, but which in no way affect the question. There may be differences of opinion respecting subjects brought forward. So much the better, as there will be more elucidation. Born a farmer's son, and at the present time having sufficient, or rather I should say daily, opportunities of seeing the practical working of a farm, I have in the course of some of my walks made daily observations, not only on this, but on other subjects. Having nothing to do, thank goodness! with the debtor-and-creditor account directly,

though indirectly it may affect me, I am better able to form a clear and decided opinion. I perceive that, without a knowledge of the simple elements of chemistry, a farmer throws away scores of pounds in the year. He thinks that dung is a cure for everything in arable land. He applies it like a quack, considering it a safe remedy for every evil; whereas an artificial would have produced a double return. Lime, I am sorry to say, is too much neglected, and, when applied, frequently wrongfully so. If this paper should promote discussion on the subject, should it bring out the ideas of practical and observant farmers (there may be many present who know more on this and other points than myself)—however, should one individual depart from the room with one iota more of knowledge than when he entered, it will have had the effect it was intended to produce; and I shall adopt Lord John Russell's motto, "Rest and be thankful."

According to Sinclair, there are three red clovers: the trifolium medium, or cow-grass, which does not answer for arable land, as it causes "twitch," and its roots are creeping; trifolium pratense-perenne, with a root slightly creeping and extremely fibrous; and trifolium pratense, a biennial, the roots of which are almost spindle-shaped, with comparatively few fibres.

## LIST OF USEFUL CLOVERS, ACCORDING TO BUCKMAN.

Section 1st. Flowers rose-red or purple.			
No.	Botanical Name.	Common Name.	Duration.
1.	Trifolium pratense	Broad clover.....	Biennial.
2.	Do. do. perenne...	Perennial ditto or cow grass .....	Perennial.
3.	Do. do. medium...	Zig-zag or marl grass .....	Bien. or peren.
4.	Do. incarnatum...	Carnation clover...	Annual.
Section 2nd. Flowers pink.			
5.	Do. hybridum ...	Alsike clover .....	Biennial.
6.	Do. striatum.....	Soft-knotted trefoil .....	Biennial.
7.	Do. fragiferum ...	Strawberry-headed trefoil .....	Perennial.
Section 3rd. Flowers white.			
8.	Do. repens .....	Dutch clover .....	Perennial.
Section 4th. Flowers yellow.			
9.	Do. filiforme ...	Small-flowered or suckling clover..	Annual.
10.	Do. procumbens..	Hop trefoil .....	Annual.

Whilst at the Royal Agricultural College, Cirencester, Professor Buckman experimented largely on the different clovers, and having gathered seeds of trifolium medium from a sand district, its usual wild habitation, planted them in some stiff land on the forest marble. Without entering on the intermediate steps, it is sufficient to state that he was able to produce the three clovers from this seed, and has therefore now no hesitation in saying that these three forms are mere varieties of the common broad-leaved or red clover. Respecting the Alsike clover, he states that it is a large and useful plant, and has been recommended for soils reputed "clover sick," and has met with good crops occasionally when broad-leaved clover has failed. The seed is mostly obtained from the Continent, and difficult to obtain pure. One sample, named "Pure Alsike Clover," contained as many as 100,000 weed seeds in a pint, sufficient to smother the clover effectually. Now for "clover sickness," from same author. The soil and mode of cultivation is a common cause of the so-called disease. On the oolites of the Cotswolds, on which we have perhaps four inches of soil, and then the rock, we constantly hear of this complaint; indeed, on the College Farm of oolitic sand all the land was said to be "clover sick;" and so long as the plough was not allowed to go deeper than 4 inches, it undoubtedly was so. But when the impression gained ground that these 4 inches had been worked out, it was decided to use the steam-plough for our roots to the depth of 12 inches; then followed the barley, to be succeeded by clover, and a crop of 2½ tons per acre was attributed to the cultivation. Now, 1866, at Bradford Abbas, in another field, with same treatment, I have like promise, and begin to think that deep cultivation for roots is a present cure for the "sickness." So far from waiting the usual eight years for another crop of clover, I have pursued my own course independently of my predecessor, in each instance calling forth the remark, "Who would have thought it?" The following is the conclusion he has drawn:—

1st. A judicious change and choice of seed. We inquire as to the soil whence we get our seed barley and wheat, but who-ever asks this with regard to clover?

2nd. The rejection as a rule of foreign seed, more especially from a warmer country.

3rd. Clover should be self-sown to be perfect; but if sown with grain we should at all events take care to sow clean seeds in clean land.

4th. Deeper cultivation, if only to the extent of three or four inches, for if we go deeper we have fresh capital to draw upon; indeed, deep cultivation may be regarded as the renovator of the soil for the present generation.

Feb. 4th, 1867. Extract from *Bell's Weekly Messenger* respecting Professor Buckman's farm in Dorset: "At the top of the upper lias, and having super-imposed the freestones of the inferior oolite, is a bed of sand in Gloucestershire about 60 feet in thickness—in Dorset more than double that. The farm is mostly situated on these sand deposits on which the soil is sandy loam. There are, however, occasional patches of inferior oolite, and here the land is stone brash. The farming has been wonderfully altered during the space of three years—couch, thistles, and weeds of all descriptions, which certainly when the Professor entered on the farm seemed daily to rise up as if in revenge for his having written so much about them, are rapidly diminishing. Each year about fifty acres are cultivated by steam, a foot deep, and the so-called clover-sick soil yields fine clover crops. It would appear that on this farm every crop becomes, as it were, the subject of experiment, inasmuch as each field is cultivated according to its condition and circumstances. The time of sowing, amount of seed, and results, are all noted in a book. This is worthy of the consideration of farmers.

Bradford Abbas, Sherborne, Dorset, Feb. 28, 1867.

I beg to reply to your questions as shortly as may be, as I am full of engagements. While admitting that any plant may be land sick, I think the cases are rare in which the clover cannot be grown with care and attention. This last year I seeded a piece of land with Dutch clover, half of which was oats, and the other half barley. Where the best crop of oats was there is a very poor plant of clover. The same with the barley. In the latter the site of some rubbish burnings has failed in the clover. Here the reason was the occupation of the land by a vigorous crop with broad leaves. [This part of the letter I do not clearly understand, but take for granted that Professor Buckman means to imply that alkalies are productive of the broad-leaved clover.—W. H. D.] Query, have we any business to call land clover-sick until we have tried clover by itself and failed? I do not much care to bring up sand from the bottom of my soil by the plough, but am fond of letting in air by the steam-cultivator—not plough—by which means I find a little of the subsoil is brought up, and a little of the surface-soil sent down. I find this method effectual in the growth of clover, when it is said to be clover-sick. I never sow dung in drills. My plan is to plough in manure in winter with the common plough six inches, and then to cultivate by steam as just stated. By this means the manure becomes disentangled and well mixed with the soil. I never drill ashes or artificial of any kind. When these are employed they are broadcasted and lightly harrowed. I use 3 cwt. of Proctor's Root Manure to the acre, for swedes and mangolds. My crop of the former last year was estimated, by judges who examined for the cup which I got, at upwards of 41 tons per acre. This year I got the cup for mangolds. This is by ploughing in any manure I can get in the winter, and broadcast the phosphatic manures when the land is prepared for the seed. I do not find it necessary to roll for compression, either in the autumn or spring; but I do so when it is to be mown, on account of stones. I think the less the clovers are bruised the better, and if it be done in frost it is absolutely destruction. A horse walking over your clover in frost will leave a track of dead plant. I roll grass seeds, as they tiller better, grasses having the habit of weaving together. I attribute much of the so-called clover sickness to the nature of the seed. I recommend a new strain to be procured from mixed clover, but then the produce will not be so large or the plants so gouty. My general conclusions are that clover sickness is not founded on fact, but arises from mistaken observations.

JAMES BUCKMAN, F.L.S., F.G.T., &c.

Feb. 27, 1867.

Mr. J. K. Fowler, Prebendal Farms, Aylesbury, Bucks.—My land is a stiff, rich loam, and some of it a heavy, strong clay. The red clover flourishes as well as ever in this neighbourhood; the general course is to grow it every eighth year, and my brother about two miles from here grows it every sixth year, and has very fine crops. I grow it every seventh year, and have generally about 35 cwt. to the acre the first cut, and about 28 to 30 cwt., according to the weather, the second cut. I never manure my clover ley in autumn or spring. I have tried it once or twice, and the effect is injurious to the crops, and it seems to waste away afterwards. I think lime, as a rule, prejudicial to all lands, unless used with great judgment, and but seldom. Lime is not a manure but a fertilizer, and soon exhausts a soil if constantly used. Nearly all South Wales, I am told, has been seriously injured by continuous liming, and on my visit to Glamorganshire two years ago was able to corroborate the report. I think deep tillage for everything except wheat is desirable, and as I use Smith's steam cultivator I smash up my land about 10 inches in depth in autumn. I think a dressing of lime once in eight years, even broadcast on clover ley before ploughing for wheat, a good thing used sparingly. I generally put about 15 loads of dung on to my turnip crop. I smash it up by steam in the autumn, and in the spring sow 1½ cwt. of Peruvian guano to the acre, and no more. I never mix anything with my red clover, and always cut it twice, selling one crop to the London market, and consuming second crop at home.

Clover, according to the analysis of Boussingault consists of—

Carbon ... ..	474
Oxygen ... ..	378
Hydrogen ... ..	50
Nitrogen ... ..	21
Inorganic matter ... ..	77
	1,000

An ordinary crop of red clover takes the following quantities from an acre of land:—

Potash ... ..	1b. 26.70
Soda ... ..	7.07
Magnesia ... ..	4.48
Phosphoric acid ... ..	8.80
Sulphuric acid ... ..	5.98
Chloride ... ..	4.88

Gross weight to be returned to an acre ,, 57.39

Land, to be beneficial to the farmer, must be composed of or contain not less than twelve different chemical substances. Silica, alumina, oxide of iron, oxide of manganese: these four make up the greater portion of every land, but chemically speaking are of trifling importance to plants. The following eight are absolutely necessary, and no land, unless provided with them either naturally or artificially, can be successfully cultivated:—Lime, magnesia, potash, soda, phosphoric acid, sulphuric acid, chlorine, and organic matter. — Page 108, Stephens' "Book of the Farm."

The crops of clover (red) and turnips carry off as a general rule (though there are exceptional cases), taking periods of liming, modes of application, qualities of lime, and soils to which they are added, as follows:—

	Per acre.	Grain.	Roots.	Total.
Turnips.....	20 tons	46	72	118lb.
Clover .....	2 tons	0	77	77lb.

On the conclusion of the reading of the paper there was loud applause.

The SECRETARY was glad to find that an opinion was expressed in the paper in favour of deep cultivation; for he also was of opinion that deep cultivation was necessary in order to prevent the clover plant being sick. The surface of the soil had been harrowed and ploughed from generation to generation at the same depth, but he believed if they wanted to derive the most benefit from it they must go deeper. If they wanted coal they had to go down for it, and if they wanted new phosphates they must go down deeper than many of them were accustomed to do. It was almost impossible for them to get steam-ploughs, but let them plough as deep as they

could with horse-power, and then he felt sure they would reap the benefit. He knew that Mr. Bendall had been liming his land after turnips for barley, and he should like to know the result from Mr. Bendall. From what Mr. Bendall told him, it appeared that the results did not come up to what was expected.

Mr. BENDALL said the only instance in which he had tried lime with his clover was four years ago. He then limed about two acres, but the crop did not stand better on those two acres than upon the rest of the field. The same field had clover upon it this year, and as it happened that it was eighty years since there was a good crop, and four years since the failure, this time it grew well.

The SECRETARY: Where was the land?

Mr. BENDALL: At Caer-bwlch.

The SECRETARY said it was his other land that he referred to.

Mr. BENDALL: Then in that case he had not seen any favourable results from liming yet. The only remedy he could think of for the failure of the crop was to plant it less frequently.

After a few remarks from Mr. FERRIS and Mr. SMITH, the latter expressing an opinion that by a judicious application of artificial manures they could grow as good crops as they did 80 years ago!

Mr. H. DE WINTON said he was in Shropshire some few years ago, and he remembered that a farmer had just left a farm near the place where he was staying, because he could

not grow seeds. He was succeeded by a man named Jones, a Welshman, who said he would see if he could not grow seeds there. The following year Mr. Jones asked him to go and look at some clover. When he went he saw twelve acres of magnificent clover. When he asked Mr. Jones what he had done he said he had well cleaned the land, drained it, and hauled a large quantity of lime to the field. Then he (Mr. De Winton) saw five or six large heaps of lime, and he thought when it was put upon the land it would certainly destroy the seeds, but when he went to the same field about six weeks afterwards the clover was half-way up his leg as he walked. It was luxuriant. Now he did not know whether Mr. Jones managed to get different lime from what they got in that district, but here was the fact. He must compliment Mr. Downes upon his able paper.

After a little further discussion the SECRETARY suggested that ten farmers, members of the Chamber, should cultivate a field of clover, and this time next year give the result of their treatment. This idea met with general approval, and ten farmers volunteered to grow a field of clover and to give the result at a meeting of the Chamber to be held about this time next year.

Mr. DOWNES then recommended the farmers to be careful how they purchased their seeds, as there was such a thing as "doctored" seed.

On the motion of the CHAIRMAN a vote of thanks was passed to Mr. Downes for his paper.

## SEWAGE.

FERTILIZATION AND PURIFICATION.—Mr. C. F. Gower, civil engineer, is of opinion that the ordinary valuation of town-sewage at twopence per ton allows an ample margin for profit, and indicates that agricultural prosperity and the purification of towns may be promoted by the conveyance of the sewage direct to the land. He says: "If it be granted that for every ton of sewage delivered upon the land twopence is actually realised by increased produce, not only will this pay the cost of conveyance (say pumping to a height of one hundred feet), but a very large margin will be left, more than enough to pay the interest on the capital expended in a complete system of drainage for any town in the kingdom. Take, for instance, a town of 40,000 inhabitants, and suppose the daily amount of sewage to be one million gallons, upwards of 1,600,000 tons per annum, not including rain-water, which latter must be diverted or kept separate from the sewage as much as possible, where pumping to any considerable height is resorted to. Now, a pumping-engine will raise from ten to fifteen tons of water one hundred feet high for a penny, including all expenses, varying with the price of coal, &c. Suppose, however, eight tons raised one hundred feet for a penny—that is, half-a-farthing per ton for pumping: the annual cost of raising 1,600,000 tons would thus be about £800; but to cover entire expenses of raising sewage one hundred feet, and delivering it upon the land, say £1,000 per annum. Then the probable outlay for a complete system of sewers in a town of 40,000 inhabitants might be £30,000; for pumping-engine, say £10,000; perhaps three miles of conduit from the town to the irrigation-meads, £8,000; and for laying out and preparing these lands for irrigation, say £4,000; making a total of £50,000, the annual interest of which, at five per cent., is £2,500. This, added to the annual cost of pumping and distribution, amounts to £3,500, against which there is the revenue of 1,600,000 tons of sewage, at twopence per ton—in round numbers, £13,000—leaving a clear profit to the town of £9,500. The cost of pumping one hundred feet high by steam-power has been stated at half-a-farthing per ton, and would vary in direct proportion to the height, or nearly so. The entire cost of conveyance—that is, the cost of conveying liquid by sewers, deduced from the interest on capital, is about one-and-a-half farthings per ton. One halfpenny per ton, therefore, as the value of sewage, would be sufficient to pay the cost of pumping one hundred feet high, as well as the interest on the outlay for drainage. A revenue from the applica-

cation of sewage to land of £13,000, in a town of 40,000 inhabitants, gives 6s. 6d. as the manurial value per head of population, which is not much below what has been assigned by chemists. It must not be forgotten, however, that the greater the water-supply of a town is, the less will be the value of the sewage per ton; and though this would entail a somewhat greater cost for pumping, there are other advantages belonging to a high state of dilution that more than compensate it. During the last few months vegetation would indeed have been thankful for plain-water irrigation, much more for a few of the millions of tons of liquid that have during that period been worse than wasted in streams and rivers."

A NEW STEP TOWARDS THE UTILIZATION OF SEWAGE.—The *Spectator* says: "Mr. G. Sillar is reported to have discovered a process which will make the sewage of towns invaluable as manure. He or his partner, Mr. Wigner, an analytical chemist, had been studying Leviticus, and came to the conclusion that the 'ashes of a heifer'—i. e., animal charcoal—and blood poured out upon the ground—i. e., blood and clay all mixed together with some ingredients not specified—would make an admirable purifier. The experiment was tried at Tottenham, where 36,000 gallons of sewage were purified in twenty minutes; and the solid residuum was found to be worth twice the cost of the experiment. From another experiment at Leicester, it is calculated that the sewage of that town would yield £160 a day, at an outlay of £17 3s. All these statements require corroboration; but further experiments are to be undertaken on a great scale. If Mr. Sillar succeeds, he will have turned his biblical researches to the public benefit at last. If we mistake not, his last deduction from Leviticus was that paying or receiving interest was sinful—an opinion which the success of a great patent tends rapidly to modify.

COWS that hold up milk, Mr. Johnson says, can be cured if they will drink sour milk. After drinking and as soon as they begin to lick the pail, they will give down freely. He has tried it with cows that would give about two-thirds the proper quantity, retaining the other portion. Then he gives them the milk to drink, and waits until they begin to lick the pail, when he has no trouble in obtaining the remainder. He has tried meal, salt, and various things, but found nothing to produce such an effect as sour milk.—*Prairie Farmer*.

## SIGNS OF THE COMING WEATHER.

At the monthly meeting of the Ballymahon Farmers' Club the Hon. L. H. King Harman in the chair, the following paper on "The Signs of Coming Weather" was read by Mr. W. HEWART, of Ballymulvey:—

The subject assigned me for this paper is one that I do not feel myself equal to, nor would I have undertaken it were it not that my desire to further the objects of the club, and to set the example to others to bear a hand in keeping the wheel in motion, prevented me from saying no, when I was named to prepare a paper on the "Signs of the Coming Weather."

A remark about the weather habitually forms the subject of our friendly greetings, and the wish and the hope of a fine day are no trivial matters in our climate. But if we are interested in the present weather, we are often far more so respecting that which is to come. It is material to the man of business, it is always important to the gentleman and lady for pleasure, and it is vital to the farmer: it was so in all times. From the beginning, from the earliest epoch, the attention of man has been directed to the detection of those signs which precede changes of the weather; and the popular proverbs and rhymes of all nations inculcate those hints of nature, which advanced science in the present day confirms and explains; so that "weather wisdom" is very far from being a mere superstition; on the contrary, every person who may combine observation of the elements with such indications as may be obtained from instruments will find that the more accurately the two sources of knowledge are compared and combined, the more satisfactory their results will prove. Ability to foretell weather can be acquired only by degrees. A look at the glasses at home and an eye turned occasionally to the heavens will enable any one who pleases to take this trouble to foresee accurately, after a little practice, the principal changes of our variable, though regularly varying, climate.

To a careful observer everything in time becomes a sort of weather-gauge. The clouds, the sky, the sun, the moon, the stars, the rainbow, the trees, the flowers, the birds—in fine, almost every insect or animal with which we are acquainted becomes the instruments of real and useful knowledge.

**Clouds.**—Numerous prognostics of the weather may be gathered from the observation of clouds; they are, as it were, floating barometers and thermometers in the skies, and are ever ready to indicate coming weather, if we study them with an adequate knowledge of their causes, the shapes they assume, the directions they take, and their position in the sky; in a word, they are the great storehouses of rain. They have been classified by Mr. Luke Howard according to their shapes, to which he gave the names, "Cirrus," "Cumulus," "Stratus," and "Nimbus." The Cirrus clouds resemble locks of hair ("mares' tails") or feathers, sometimes covering the face of the sky with a thin transparent gauze. If these clouds form during fine weather, with a falling barometer, it is almost sure to rain. The Cumulus clouds are like huge sugarloaves, conical or convex from a horizontal base. If they form during fine weather, they indicate its continuance; but if they are fleecy and sail against the wind, they indicate rain; if their outline is very hard and they come up with the wind, they foretell fine weather. The Stratus cloud is what we sometimes see in the evening—an extensive continuous horizontal sheet of cloud, or creeping mist, always nearer the earth than any other cloud. Should it disappear in the morning we may expect the finest weather, but should it combine with the cirrus cloud, forming what sailors call "a mackerel sky," wind and rain will follow; hence the saying—

"Mackerel scales and mares' tails  
Make lofty ships carry low sails."

Clouds composed of the cumulus and stratus assume all sorts of gigantic forms, such as towers, huge rocks, &c.; they portend a change of weather; hence the saying—

"When clouds appear like rocks and towers  
The earth's refreshed by frequent showers."

The Nimbus is the true and immediate rain cloud, shapeless, but with defined outline, its edge gradually shaped off from the deep, gray mass into transparency. Just before rain we may

observe small under-clouds, what the sailors call "scud," often moving with much greater velocity than those above them. As wind is only air in motion its first effect is in driving the clouds before it; hence, when clouds float about in a serene sky, from whatever quarter they come, you may expect wind; if they come from the north-east they denote wind, if from the south great rains; but let them come from what quarter they will, if you see them driving about at sunset, they are sure signs of an approaching tempest. Soft-looking or delicate clouds foretell fine weather—hard-edged oily-looking clouds, wind—small inky-looking clouds, rain.

**The Sky.**—A bright yellow sky at sunset presages wind—a pale yellow, wet; and a greenish sickly-looking colour, wind and rain; thus, by the prevalence of red, yellow, and other tints, the coming weather may be foretold very nearly. After fine clear weather, the first signs in the sky of a coming change are usually white streaks or mottled patches of distant clouds, and are followed by an overcasting of murky vapour that finally grows into cloudiness; this appearance is an infallible sign of rain—a light, bright, blue sky indicates fine weather—a red sky in the morning, bad weather—a grey sky in the morning, fine weather—a high dawn, wind—a low dawn, fair weather. A "high dawn" is when the first indications of daylight are seen above a bank of clouds; a "low dawn" is when the day breaks on or near the horizon, the first streaks of light being very low down. A red lowering sky at sunrise indicates a wet day; this results from the fact that the higher regions of the air are laden with vapour, which is on the point of condensation, and which the heat of the rising sun is insufficient to disperse; hence the weather axiom—

"If red the sun begins his race,  
Be sure that rain will fall apace."

Amongst weather prognostics from general appearances may be mentioned that remarkable clearness of atmosphere near the horizon—distant objects, such as hills, unusually visible or raised by refraction, may be mentioned amongst signs of wet. Inanimate creation also sounds the alarm of coming wet, for stones seem to sweat, and wood swells, salt becomes damp, and strings of violins shrink and snap against rain.

**The Sun.**—A red sunset indicates a fine day to-morrow; the vapour is not actually condensed into clouds, and so it refracts the red rays of sunlight. A grey sunset indicates wet; evidently the air on the surface of the earth is very damp at the time, saturated with vapour, so we may expect wet; and hence the saying—

"Evening red and morning gray  
Set the traveller on his way;  
Evening gray and morning red  
Bring rain in torrents on his head."

A yellow sunset indicates wet; the vapour of the air being actually condensed into clouds, presents more resistance to the rays of light, and so the most refracted rays, the yellow, are bent to the eye. The vapours of the air are therefore in a fit condition to descend as rain, which may be soon expected.

If the sun at rising appears enlarged, there will shortly be sudden showers, if in summer, but in winter settled and moderate weather; the enlarged appearance of the sun is the result of dense vapour in the air on the point of condensation.

If the sun set behind a straight skirting of cloud be sure of wind from that point—if it set behind a rugged rocky, or mixed bank of clouds, very stormy, wet, or showery will be the morrow—if it set in a general sheet of haziness of a dusky, leaden hue, bad weather is near.

A very clear sunset, of a pale gold colour, is a sign of fine weather, if there be a dewy evening with it; the prevalence of dew is, in itself, an indication of fine weather, because it is not formed when the sky is cloudy, or when there is much wind. When the deposition of dew takes place, the warmth from the earth is prevented from escaping, by some non-conductor of heat, as grass, leaving the surface of the blades of grass much colder than the surrounding air; hence dew is formed.

A clear, orange-coloured sunset foretells a very fine day to follow.

*The Moon and Stars.*—The influence of the moon on the weather has been doubted on high authority—that of the French astronomer Arago, who alleged that the changes must be only a coincidence, sometimes observed and mistakenly inferred as a law: in spite of this, however, the influence of the moon on the weather will be maintained by many as occasioning rain in its phases of new and full. Admiral Fitzroy said that every weather prophet appeals to the moon. The ancient Egyptians observed the peculiar effect which the moon produces on the cat; if the eyes of that animal be observed at new moon, the pupils will be found to be extremely small, and they will be seen to enlarge gradually as the moon receives additional light from the sun; at the time of full moon the pupils are at the largest, and they as gradually diminish towards the change. The Shepherd of Banbury, who formed rules to judge of the changes of weather on his experience of forty years' observations, simply tells us that the appearance of halos round the moon is a sign of wet; that if she shine thin and clear, she indicates serenity; but if she appear red, and her whole illuminated part visible, and in a state of vibration, she portends wind. And Virgil says—

"If on her cheeks you see the maiden's blush,  
The ruddy moon foreshows the winds will rush."

It has also been remarked by the Banbury Shepherd that a fog in the new moon is a sign of good weather—in the old, a sign of wet.

The dimness of the stars and other heavenly bodies is one of the surest signs of very rainy weather. When they look bigger than usual, are pale and dull, and without rays, the clouds are condensing into rain, which will very soon follow. If it begin to rain an hour or two before sunrise, it is likely to clear up before noon, and so continue all day; but if the rain begin an hour or two after sunrise, it is likely to rain all day, except the rainbow be seen before it rains.

*The Rainbow.*—I may observe that when the rainbow appears, the spectator has the sun behind him, and the clouds with the bow in them before him. We are all too well acquainted with the colours to need a description of them here: if the green be large and bright, it is a sign of rain; if red be the strongest colour, there will be wind and rain together.

After a long drought the rainbow is a sign of rain. After much wet the rainbow indicates fair weather. If the rainbow breaks up all at once, there will follow serene and settled weather. If the bow be seen in the morning rain will follow, because a morning rainbow is always in the west, and our heavy rains are generally brought to us by west and south-west winds, therefore the clouds which present the rainbow in the west must be coming up with the wind; hence the saying—

"A rainbow in the morning  
Is the shepherd's warning."

If the bow be seen at noon, we may expect settled and heavy rains; if at night, fair weather, because it must then be in the east, or opposite the sun, consequently the clouds reflecting the rainbow must have been driven from west to east, having already passed over us, and there departing from us; hence the saying—

"A rainbow at night  
Is the shepherd's delight."

*Flowers.*—Flowers and plants are good barometers. The trefol swells in the stalk against rain, but the leaves droop and hang down. If the Siberian sow-thistle shuts at night, the ensuing day will be fine; if it opens it will be cloudy and rainy. If the African marigold continues shut after seven in the morning, rain is at hand. The pimpernel (*Anagallis arvensis*), which is a very common flower, and may be called the poor man's weather-glass, shuts itself up extremely close against rainy weather. Just before rain flowers smell stronger and sweeter, simply because the vapours of the air prevent the scented particles of their perfume from ascending, as they would in drier air; and for similar reasons, cesspools, &c., give notice of their existence.

*Birds.*—When rain is coming, ducks and geese preen themselves and make a show of washing. Swallows fly up and down low; they fly low because their food is low, for the insects which they feed upon have taken refuge from the colder regions of the air, where the change is beginning, in the warmer air near the earth: crows make a gliding motion in their flight, called playing at football: the song of the robin,

perched early in the morning on the top branch, is a sure sign of a fine day: if cocks crow at unusual hours, but especially when a hen and her chickens crowd into the house, rain is at hand; cocks are prized in Japan for this reason.

*Animals.*—It cannot be doubted that Nature has given to animals instinct in prognosticating a change of weather, for when cattle seek sheltered places instead of spreading over their usual range, an unfavourable change is probable, if not certain rain or stormy weather. If oxen lie on their right side, look towards the south, and lick their hoofs, if cows look up in the air and snuff it, and if asses bray violently: these are sure signs of rain. At the approach of rain cats turn their backs to the fire and rub their ears, this is owing either to the incipient humidity getting between the hair, or the air being surcharged with electricity, both of which causes produce the sensation of itching, which the cat experiences intensely, its hair being very electrical. To give you an idea of the notions that some old people entertain in the habits of the cat as regards the weather, I shall tell you an event that occurred about fifty or sixty years ago, the truth of which I can vouch for. At the time I speak of, there lived in the next parish to this an old couple in humble, but very comfortable, circumstances. The old man, "Thady"—for that was his name—had reached an advanced age, his eyes were dim, he could scarcely see; it was his habit every day, in fine weather, to grope his way into the garden and enjoy the sun and air for an hour or two. Tea was not then used by the humbler classes as an article of dietary; nevertheless, his old wife "Judy" believed that a cup was an antidote against headache, and on these occasions she used to put her earthenware black-glazed little teapot to the fire to draw, the foremill of which, I often heard her affirm, was better than the strippings of any other pot in the neighbourhood. Thady returned one day sooner than usual, sat down in his old arm-chair, groped the hob-hob for his pipe, and in pressing it down on a coal, he thought he saw something at the fire; he called out to Judy, who was in the room off the kitchen, "Judy, what's this at the fire?" "Sure 'tis the cat, Thady, avourneen." "Bad luck to her, the jade, she will bring us bad weather," and making a blow of his stick at her, he split both the foremill and strippings, and destroyed all her milking properties for ever.

The foregoing remarks fall far short of what might be said on the signs of coming weather, and as the subject has been, I may say, only broached, I hope it will be hereafter taken up by some member of this club, more learned in science and better acquainted with the laws of Nature; but before I conclude I shall refer you to signs of another kind—signs in which, I am confident, everyone present, as well as myself, feel a deep interest—I mean the apparent signs of our kind and honourable chairman's improved health and increasing vigour. May those signs long continue and increase.

AN EDEN IN CALIFORNIA.—It is the vineyards and orange and lemon orchards that make Los Angeles the garden-spot of California. Just imagine a collection of gardens, six miles square, and producing at all times of the year almost everything that grows under the sun. One of the largest and most beautiful places in the city is the Wolfskill vineyards, containing 2,000 orange-trees, 1,000 lemon-trees, 500 walnut, 100 fig, and 100 lime-trees, and 55,000 grape-vines. Near by is the vineyard of Mr. Childs, containing 500 orange, the same number each of peach, plum, nectarine, apricot, olive, walnut, and chestnut-trees, and 10,000 vines. Right in the heart of the city is Don Mateo Keller's place, containing 100,000 grape-vines, 1,000 lemon, 500 orange, 100 lime, 100 olive, 200 walnut, and 100 fig-trees, and all of the other variety of fruits known in the south and in the semi-tropics. He also raises hops, cotton and tobacco, wheat, barley, corn, all kinds of vegetables, and everything of the berry tribe. Last fall, Mr. Keller made 100,000 gallons of wine, and nearly as much brandy. A few miles from the city a Mr. Rose has a vineyard of 200,000 grape-vines. Near him is the vineyard of Colonel Kewen, containing 75,000 vines, 800 walnut, 500 orange, and 300 each of lemon and olive-trees. It must be recollected that from a little elevation in the centre of this garden-city may be seen the broad Pacific on the one hand, and upon the other, two hundred miles of mountains covered with snow. No such picture may be seen upon the Mediterranean Sea, if, indeed, anywhere in the world.

## STAFFORDSHIRE AGRICULTURAL SOCIETY.

## MEETING IN THE POTTERIES.

The annual exhibition of this society, held on Wednesday and Thursday, Sept. 9 and 10, in the Potteries, has proved very successful, especially considering the fact that only one show, that of last year, has been held since 1864, and that no cattle stock have been exhibited since that year, owing to the cattle-plague. The site was very convenient, for Cauldon-place, where the meeting was held, is near the Stoke station—an almost indispensable condition for the show in the Potteries.

The cattle stock formed the prime feature of the show. As a whole it was not equal to what has been seen at the Staffordshire shows, especially at the one last held at Newcastle; but considering the ravages of the cattle-plague, it was very good, and the male animals in every class might have been matched against those at any county show. The unfavourable nature of the season accounts for some of the stock being in poor condition.

The Shropshire sheep were excellent, and the competition very keen. The long-woolled sheep came up in small force, and Shorthorns and Shropshires seem to be driving every other breed off the Staffordshire farms.

The horse show proved very attractive. The hunters were a moderate show, and the harness horses and cobs pretty good.

The implements were a satisfactory show. Several minor improvements overcoming difficulties, simplifying parts, giving greater strength, and reducing cost, were presented at the stands of the leading makers.

## THE JUDGES.

Shorthorns, fat stock, and Shropshire sheep.—R. Brown, Wigginton House, Tamworth; J. Woods, Clipstone Park; T. Horton, Harnage Grange.

Dairy cattle and Leicester sheep.—J. A. Beale, Brockhurst; G. Gould, Pilsbury.

Hunting horses, hacks, and cobs.—C. Randall, Chadbury; A. Griffith, Lichfield.

Agricultural horses and pigs.—R. Warner, Weston Hill; —Belcher, Morton.

Implements in yard.—J. J. Rowley, Rowthorn; W. Power, Brancote.

Implements on trial in field.—C. R. Keeling, Yew Tree Farm; W. Collins, Aston; also judges of ploughing for the district prizes.

Cheese.—E. Etches, Derby; T. R. Smith, Clifton Cottage, Ashbourn.

We append the awards of the judges:

## SHORTHORNS.

Bulls.—First prize, £10, R. Ratcliffe, Walton Hall, Burton; second, £5, J. Hardy, M.P., Dunstall, Burton.

Yearling bulls.—First prize, £10, T. Robinson, Burton; second, £5, T. Travis, Postern Lodge, Belper.

Bull calves.—First prize, £5, E. Tunncliffe, Bromley, Eccleshall; second, £2 10s., W. Wakefield, Catton, Burton.

Cows.—First prize, £6, J. Hill, Bladon Castle, Solney, Burton; second, £4, W. Wakefield.

In-calf two-year-old heifers in pairs.—First prize, £6, R. Sneyd; second, £4, J. Slingaby, Hanchurch.

Yearling heifers in pairs.—First prize, £5, R. Ratcliffe; second, £3, J. Slingaby.

## CATTLE FOR DAIRY PURPOSES.

Bulls.—First prize, £10, and the society's silver medal, W. H. Kidson, Featherstone, Wolverhampton; second, £5, the Marquis of Anglesey, Beaudesert, Rugeley.

Cows in pairs.—First prize, £10, T. C. Smith, Birdsgrove, Ashbourn; second, £5, W. H. Kidson.

In-calf two-year-old heifers.—First prize, £5, and second, £3, T. Carrington, Eaton, Uttoxeter.

Yearling heifers.—First prize, £4, B. Bond, Draycott, Cheadle; second, £2, T. Burgess.

Fat cattle.—First prize, silver cup, value £10, W. Spencer, Potter's Marston, Hinckley; second, £4, the Marquis of Anglesey.

## SHEEP.

Rams.—First prize, £5, the society's silver medal, R. Johnson, Kirkireton, Wirksworth; second, £3, C. Mellor, Ather, Ashbourn.

Shearling rams.—First prize, £5, C. Mellor; second, £3, R. Johnson.

Ram lambs.—First prize, £3, and second, £2, R. Johnson.

Breeding ewes.—First prize, £5, R. Johnson.

Shearling ewes.—First prize, £3, R. Johnson.

Ewe lambs.—First prize, £3, R. Johnson.

## SHROPSHIRE AND BLACK OR GREY-FACED SHEEP.

Rams.—First prize, £5, and the society's silver medal, W. Baker, Moor Barns, Atherstone; second, £3, C. Timmis, Brick House, Stafford. The class commended.

Shearling rams.—First prize, £5, C. Byrd, Littywood; second, £3, W. Baker.

Ram lambs.—First prize, £3, and second, £2, W. Stubbs, Rickerscote, Stafford.

Breeding ewes.—First prize, £3, C. R. Keeling, Yew Tree Farm; second, £2, J. Coxon.

Shearling ewes.—First prize, £3, J. Coxon; second, £2, S. Matthews.

Ewe lambs.—First prize, £3, J. Coxon; second, £2, W. Baker.

## HORSES.

## FOR AGRICULTURAL PURPOSES.

Entire horses.—First prize, £10 and silver medal, J. Yeomans, Four Ashes; second, £3, J. Ash, Cash Heath, Cheshire. Geldings or mares in pairs.—First prize, £10, the Stonetrough Colliery Company, Lawton, Cheshire; second, £5, T. Burgess, Burleydam, Whitechurch.

Mares and foals.—First prize, £8, J. Alcock, Collarhead; second, £5, the Stonetrough Colliery Company.

Two-year-old geldings or fillies.—First prize, £5, the Stonetrough Colliery Company; second, £3, J. Hawkworth, Barton Blount, Derby.

Yearling geldings or fillies.—First prize, £5, T. Burgess; second, £3, Stonetrough Colliery Company.

## FOR HUNTING PURPOSES.

Hunting horse or mare (open to all England).—First prize, £31, J. Cooper, Trent Vale; second, £10, Captain E. N. Heygate, Leominster.

Mares and foals.—First prize, £6, H. Cottrell, Uttoxeter; second, £4, Mrs. Ford, Badenhall, Eccleshall.

Hack horses or mares.—First prize, £6, and second, £4, G. J. Mitchell, Newton Mount, Burton.

Cobs.—First prize, £6, the Bridgewater Trustees, Stoke; second, £4, J. T. Smith, Cliff Bank Cottage, Stoke.

## EXTRA STOCK.

CATTLE.—Medal, Rev. J. K. Dunne, Cresswell, Cheadle (Shorthorn heifer).

SHEEP.—Medal, J. Coxon.

## PIGS.

Boars of a large breed.—First prize, £4, M. Walker, Aslow, Burton; second, £2, J. Hawkworth, Barton Blount, Derby.

Sows of a large breed.—First prize, £4, T. Bantock, Wolverhampton; second, £3, M. Walker.

Boars of a small breed.—First prize, £4, J. Chadderton; second, £3, the Marquis of Anglesey.

Sows of a small breed.—First prize, £4, T. Bantock; second, £2, the Marquis of Anglesey.

Pigs in pens.—First prize, £4, and second, £2, M. Walker.

## CHEESE.

Thick.—First prize, £6, T. Ashcroft, Walford, Eccleshall; second, £4, W. H. Sneyd Kynnersley, Marchington; third,



£3, T. Simon, Terahill, Market Drayton; fourth, £2, J. Chadderton.

Thin.—First prize, £6, T. C. Smith, Aashbourn; second, £4, J. Hawksworth, Barton Blount, Derby; third, £3, J. Carrington, Croxton Abbey, Uttoxeter; fourth, £2, M. Walker, Analow.

At the Judges' Dinner, on the evening of the first day, the subject proposed for discussion, by Mr. J. A. Wise, the Chairman, was, "Can any one tell us how to rub through the approaching winter with reference to the feeding of stock; how to make the best of what we have, and what we can get to help us which we have not got?"

Mr. RANDALL (Chadbury) said he would describe his own position and the way in which he had endeavoured to meet it. That was not the first time they had been called upon to consider the difficulty they had now to encounter. They were pretty much in the same position as regarded turnips and swedes in 1864. He had always used a large amount of cabbages for feeding, but that year as they were falling early they had to consider how to economise their mangold-wurtzel, of which he was in the habit of growing a considerable quantity, but which he did not like to begin to use until the winter was nearly passed away. In the year to which he had referred they found their cabbages nearly gone at the end of September, and he suggested to his shepherd, who had been with him for thirty years, that they should pulp the mangolds and mix hay and straw chaff with them. The shepherd said the sheep would never do with pulped mangolds, but they tried it, and for the first week they did not cut a very good figure; but the second week they improved, and the result was that it answered so well they had always pulped mangold-wurtzel since. He hoped the year 1868 would teach them as useful a lesson as 1864 had done. As he said he had been for many years a great grower of cabbages, and they put as many in as the land would hold, and seeing now that they had nothing to fall back upon when the cabbages were gone, they were anxious to economise them, and were therefore using a smaller quantity of cabbages with a greater quantity of dry food, and the lambs had done better with that than before. None of them could be worse off in their prospects for winter-foed than he was. He had always previously raised a large crop of mangolds, but this year he had suffered from what they in that neighbourhood knew nothing of: his land which was almost all stiff clay had been overrun with wild onions, and he had no alternative but to get rid of them. Having cultivated deeply by steam to get rid of the onions the drought penetrated the land so deeply that the mangolds never came up; and the same was the case with the swedes and turnips. The only plan he could see to make up for this loss was to sow a great breadth of the land in the autumn; and on his bean fallows he sowed forty acres of mustard, which would be ready for the sheep to feed off in a fortnight. He sowed forty acres of rape, which would be ready when the mustard was consumed, and about sixty acres of turnips which, if they had a mild open season, might come in when the rape was gone, and in this way he hoped to pull through the winter. That was the course he had adopted, as what seemed best for him, under the special difficulties in which he was placed, and he should be glad to hear what others had done. In answer to a remark by Mr. A. Griffith, of Lichfield, Mr. Randall said his land was by no means rich: in fact, he rented a portion of it at 7s. an acre.

Mr. ROWLEY (Rowthorne) said no occasion had, in his opinion, arisen in the lives of those present better calculated to raise discussion than the present extraordinary season. In his part of the county of Nottingham turnips were a complete failure, and it was the same with the growing crops of seeds under barley and wheat. It was a question not merely of the present time, but of what would be the result if they had a succession of seasons of a similar character. He thought it would give farmers and landlords a serious problem, and he really did not know how the tenant-farmer was to withstand the difficulties in which the season had placed him. He had every confidence in his skill, in his inventive genius, and in his diligence and perseverance; but, in spite of all, he was not sure that the result would not be a serious loss, and a heavy defalcation in the farmers' accounts. There had been some speculations in his part of the country as to what should be

done, and it seemed to be the general opinion that they must in many cases set aside established rules as to the course of cropping to be adopted. There seemed to be a general impression that wheat could not be grown in many cases where it would have been in ordinary seasons, farmers appearing disposed to let clover seeds remain where there seemed any prospect of growing, instead of ploughing them up for wheat in the usual way, and to pasture or mow them in the following year, as the case might require. There was one plan which he thought had some claim to consideration, which was on barley stubbles where the seeds had failed in the present season to re-sow them in the spring with clover and rape, and pasture them during the summer in the usual way. Mr. Randall's proposal to grow mustard, rape, Italian rye-grass, and similar plants in the autumn would be no doubt beneficial, especially in cases where the land was overstocked. He did think that an overstocked farm was one of the greatest evils. In considering the scarcity of provender the question must be a vital one, and he thought the amount of stock kept must be considerably reduced, and so they must reduce the cost of keeping it. It was a most important question where they should grow their wheats. Some said on barley stubbles, and some said on old stubbles; but it was generally admitted in his part of the country that they must not plough up the clover-root for wheat; and they must grow their wheat as they best could, probably on the missed turnip crops. He had grown an abundant crop of wheat chiefly on lands on which the turnips had missed, and although many of the young clover seeds, after barleys and wheats, were not looking as they might have been, they began to show some signs of vitality and to give some hopes of a partial crop which might help them in their difficulties with the stock. They must employ machinery to economise food by pulping, and they would have to consume large quantities of barley for feeding the stock; in fact, in his neighbourhood he believed that many farmers would consume everything that was grown in feeding the stock, except the wheat, and his was a great barley district. He thought they must reduce the quantity of stock, if not immediately at any rate in the future, by putting fewer ewes to the ram than they had been accustomed to do. Noticing the implements, of which he was one of the judges, Mr. Rowley said he was glad to witness a steady improvement year by year, and the gradual reduction of all those useless things with which almost all agricultural exhibitions used to be crowded (Hear, hear).

Mr. RANDALL did not agree with Mr. Rowley that they could reduce their stock, as they could only do so now at a great sacrifice, since nobody wanted to buy. Again, he deprecated making any alteration in the courses of crops on account of temporary difficulties. They must grow wheat. It was a main crop on which they depended for their rent. He thought they must take it for granted that they would have to keep their stock, and the question was how. He thought he saw his way to keeping his sheep moderately through the winter; but how were they in that neighbourhood to feed their dairy stock, which many of them kept largely? In his neighbourhood they had large crops of straw which they could cut up into chaff and mix with purchased food by steaming. But in that neighbourhood they had very little straw, and he feared poor crops of hay, and he was very anxious to hear from Staffordshire farmers how they proposed to get through the winter.

This appeal, in spite of the pressing invitations of the Chairman, produced no response from any Staffordshire farmer present, which led Mr. Randall to say that their silence conveyed to him the impression that he was mistaken in supposing they had any difficulties in that county, and he was glad to hear that there were some good crops of hay. The company, however, did not appear to endorse this explanation of the silence of the Staffordshire farmers on this important question.

Mr. BILL, in proposing the health of Mr. Wise, alluded to the fact that it was that gentleman who had, by his active exertions and by discussing the matter at the market dinners, been the means of starting the society in 1843, the first show having been held in 1844; and Mr. Wise, in replying, expressed regret that it was not the practice in Staffordshire, as it was in Devonshire, for the landowners to meet the tenants at the market dinners. Amongst other toasts, the health of the Secretary, Mr. Tomkinson, who has occupied that position for twenty-five years, was proposed by the Chairman in very warm terms, and received with the greatest cordiality.

At the Society's Dinner, M. J. A. WISE, the chairman, said with regard to the exhibition held that day he thought there was much for congratulation, because the stock was altogether excellent, especially the cheese, and he thought that most of them would be pleased with the cheese which had been shown, for he did not know of any department of Staffordshire farming more important than that, seeing that there was so much competition with the American cheese, and that consequently, in order to maintain their position, they ought to make English cheese very good indeed. A great deal of the cheese was spoiled before it was made, to use an Irishism; or, in other words, the milk was allowed to get into an unfit state. Moreover, it was important to have good warehouses and places to put the cheese in after it was made. They had had as a community very hard and trying times; but he hoped that by patience and perseverance all those little difficulties—in many cases, he was afraid, great difficulties—which surrounded them and would surround their prospects for the next twelve months, would be overcome. He believed there was nothing so likely to promote the prosperity of the agricultural interest as a cordial and sincere co-operation between landlord and tenant, the owner and occupier of the soil. With a due amount of confidence in each other and proper agreements, such as might be the basis of an excellent understanding—namely, an agreement for twelve months' notice and full compensation for all unexhausted improvements—he could not conceive that any difference need arise. He knew that a great many farmers desired leases, and the time was come when all these things would have to be considered. Already a great many noblemen and large proprietors would give leases. Lord Derby, for instance, never refused. In the county of Stafford there was a great amount of confidence between landlord and tenants, and he trusted that in no agreements which might be made would there be any unnecessary securities, any discouraging restrictions; for he believed such securities and restrictions were of very little avail with a good farmer, and would not improve a bad one. A farmer having his land well drained and cultivated should not expect a landlord to take more than his due rent, and a landlord should not expect a farmer to take away besides his crops what he was not entitled to. Where there was an excess of hedgerow, timber, or game, it was the duty of the landlord to get rid of the excess; because whilst a tenant-farmer was always delighted that shooting should take place about an estate, still, when he heard of cartloads of game being sold, or the estate being let for sporting that ceased to be for the use and enjoyment of the owner, he felt that that did not come within the proper position a landlord should hold with respect to his estate. He would suggest for their consideration that one of the great requirements of the present day was improved cottages for the labourers, for if they were to have good labourers permanently in their service, practically acquainted with their duties, and able to look after their implements and machinery, they must provide proper cottages attached to the farms, so that those labourers might be close to their work, and become so attached to the soil as to have no temptation to leave it. An occupier of the soil having these things, there was one thing which he would ask himself: Had he enough capital to cultivate the farm? for he would never benefit by having too much land for his capital. The farmer produced bread and cheese and beef, and, like a manufacturer, if he had insufficient capital, he first did injustice to himself: he suffered first, and then other classes suffered also. He would advise tenant-farmers to study minutely the climate in which they lived, and the character of the soil which they cultivated. They might not all be chemists; but they might apply the principle of chemistry to their work, because, if they took from the land, they ought to restore to it proportionately. They must take from the land what they gave it, and put into the land what they took from it. That principle was carried out in the vineyards of Germany, where it was discovered that the best manure was the leaves of the vines and the refuse of the fruit which produced the wines. He next reminded them that it was of great importance to buy their seeds from men upon whom they could depend, so as to avoid the use of cooked and adulterated seeds, and then referred to the question of the utilisation of sewage. While believing that farmyard manure was the best, if properly managed, so that its fertilising elements were not allowed to evaporate, he thought that town sewage would be of great benefit to farmers; but the townspeople

must first show them how it would be of use, and then they would use it. It was a question which would become of the greatest interest to the tenant-farmers, when the utilisation of sewage could be properly developed. One other point he wished to refer to, and that was as to locomotives and smoking. They might say, What had locomotives to do with farming? He maintained that railways were dangerous neighbours, and that, owing to coal being burnt in the locomotives instead of coke, and the tops of chimneys not being protected as formerly, they endangered a great deal of the valuable crops of the farmers when passing through the country. No man could have travelled latterly without seeing how many railway embankments had been fired, and in many cases, as at Whitmore, in their own district, how large an amount of valuable corn had been burnt by fire from locomotives. This brought him to the subject of smoking. He had noticed with regret that in corn-fields and stackyards numbers of men had been in the habit of smoking while at their work. They certainly, as a friend just reminded him, did not consume their own smoke. But, seriously, the question was one requiring attention. Before sitting down, he must express his astonishment that the farmers of Staffordshire allowed, year after year, six or seven different weights to be adopted, so that if a man went to Drayton, Newcastle, Uttoxeter, Stone, and Stafford markets, at each place he would have to take out his paper and pencil to calculate all sorts of items, because of the variations of the weights adopted at the different places, the only person knowing what he was doing when making a bargain being the buyer, who knew very well that he would resell by imperial measure. He recommended them all to adopt the imperial measure. He then congratulated them upon the excellent wheat-crops of the past season, and again alluded to the trying nature of the past season to farmers.

The Right Hon. C. B. ADDERLEY rose to propose the Judges. He said he was sure that every one present would share the satisfaction he felt at the course pursued by their chairman, though he must confess that, even in these revolutionary days, his boldness had surprised him. To get through the bishop and clergy, the army and navy, and, in fact, all the civil, ecclesiastical, and military institutions of the country in a word, certainly startled him at first; but he felt and acknowledged the wisdom of that proceeding, and he hoped a similar course would be adopted at many future meetings. He was not quite sure that even a Conservative ministry would not be found ready to approve that course.

Mr. C. R. KEELING, in responding, said: If the Society was to go forward, more valuable prizes must be offered, and then the farmers of the county would make an effort to send their stock to the meetings. It could scarcely be expected that they would bring their stock long distances, at a great expense, for the paltry premiums which are now being offered. He had himself won a first prize that day; but that did not pay the railway fare of himself and his sheep to and from the Show. He thought, too, there was room for improvement in the management. He could not understand why the timber fences in which the cattle were shown tumbled all to pieces; and with respect to hunting horses, he suggested that for the future the leaps should be lower and more numerous, for the hurdles used that day were of too formidable a height. Farmers were, as a rule, fond of hunting, and he had no doubt that the offering of prizes for animals of that class would tend very much to improve the breed.

Sir E. M. BULLER proposed the "Agriculture, Manufacture, and Commerce." The chairman had jumped over the Bishop and Clergy, the Army and Navy, the Lord Lieutenant and Magistrates, and House of Lords and Commons, and his right hon. friend had complimented him upon the wisdom of the proceeding. He really did not know how to follow his right hon. friend, for he felt sure he should be left far behind. There was that great subject which interested them all—the malt-tax. On that he and Mr. Adderley had invariably acted together. He himself had done his utmost to bring it before the House of Commons, and in committee he had done all that he could to elicit the truth on the subject. The company knew as well as he did that he could not create facts. He wished the facts were stronger on their side, and he regretted that the opponents of the tax had not been able to convince one of their colleagues who sat with them in committee. A very mo-

derate and proper report was carried by the casting vote of the chairman, and he should always maintain that the malt-tax was a tax which pressed unfairly upon the agricultural community, and that it was one of those taxes which ought first to be subjected to revision. Notwithstanding the opposition with which those had been met who advocated the revision of the tax, he was satisfied that the man who would bring it forward completely before the House of Commons, although he could not do more than make the best of his case, would be fairly listened to, and unquestionably would have his (Sir Edward's) support (loud applause). There was another point on which he and his right hon. friend had acted together, and that was in supporting a bill having for its object to give the greatest possible protection to the herds of this country. It should be borne in mind that in dealing with that question they were acting in the interests of the great hives of manufacturing industry whose supply of food was at stake. The object of the measure was not to check or impede in any way the importation of foreign cattle, but to protect not only the agricultural interest, but the interests of manufacture and of the public at large from the fearful consequences of the rinderpest. The visitation under which the country had already suffered had not only been disastrous to the agricultural interest, but had led to the price of food being enormously enhanced. The cattle plague had left the normal price of beef 9d. per lb., but he hoped they were not too sanguine in looking forward to a return of moderate prices, and a complete recovery from that calamity. Mr. Wise and other gentlemen had alluded to a subject of great importance. He referred to the extreme value of a cordial co-operation between landlords and their tenants—but there was another kind of co-operation which was of still greater importance, not only to the agricultural, but the commercial and manufacturing interests, and that was the co-operation of capital and labour. No man could take a fair survey of the circumstances of the country without wishing in his heart that for the good of the labourer he might have more enjoyment and less toil. But how were they to arrive at that? It would be by the improvement of the implements used and the machinery employed. It was only by raising the intelligence of the labourer and giving him the power, by improvement in machinery, to produce a greater amount of work with a less amount of labour. In addition to that, they must give him the best possible education to fit him for the position he had to fill, and—(that he might be of the utmost possible value) the best lodging, the best food, and the best protection from the evils likely to assail him.

Mr. MASEN regretted that Sir Edward Buller had not been able to convince moderate men of the justice of dealing

at once with the obnoxious malt tax. Mr. Adderley had alluded to a more important subject, and he was sorry that he had not done so at an earlier period of his speech, in order that he might have devoted a little more time to it. He meant the absence of security to the farmer for the capital invested in the land. That was a subject which earnestly required legislative interference, and he trusted that at the forthcoming election the constituencies would take care to ascertain from the candidates what course they would be prepared to take on this question if returned to Parliament. The subject of labourers' cottages, and of their education, had been referred to. He was strongly in favour of the education of agricultural labourers. If a man could neither read nor write nor work figures, he was deprived of some of the best feelings with which nature had endowed the race; but when he was at all educated he saw the evils which surrounded him, and would not be satisfied until they were removed. They might feel certain of this, that before many years had passed the agricultural labourer would insist that a greater amount of cottage accommodation should be provided for him. The capital would have to be provided by the landowners, but as an occupier of land he should be prepared to pay a good per-centage upon the outlay. The universal introduction of machinery made it indispensable that the agricultural labourer should be a man of more intelligence than he was twenty years ago. They had heard a good deal of late of the growth of chambers of agriculture, and it was a fact that in a few months the number of members in such associations had increased from 10,000 to 150,000. He hoped every gentleman present who had not already done so would enrol himself in one or other of those chambers, for they would find that it was in the power of the Central Chamber in London to do a great deal for the promotion of their interests by bringing their complaints under the notice of Parliament.

Mr. DICKINSON said he regretted the absence of the Mayor of Hanley; but as he had been called upon, he should have much pleasure in responding to the toast. The chairman had alluded to one subject which touched him personally, and that was the different corn measures used in different markets. No doubt that led to very great inconvenience, but he despaired of moving the agricultural mind in this matter. At Liverpool there had been a change of 70 lbs. to 100 lbs., which was called a cental; but, he repeated, that he despaired of getting the farmers to agree on the subject.

It will be seen, from the allusions made, that the chairman adopted an admirable plan of giving all the more formal toasts in one opening speech.

## THE WAKEFIELD SHOW.

The fourth annual meeting of the Wakefield Show was held on Saturday, Sept. 5. It was signalized by a marked advance in every department over any previous exhibition. In no class was this more noticeable than in the Shorthorns, which comprised the best bred animals the kingdom can boast of. The bull Bolivar, belonging to Mr. Brierley, of Rhodes House, and which deservedly obtained the President's Champion Cup for the best bull in the yard, has, in its brief sixteen months' existence, had a career which boasts of not the slightest check. Competing against it for the Champion's Cup were four bred by Lady Pigot, of Newmarket—Charles-le-Beau, Rosalia, Queen of Rosalia, and Dame of Rosalia, which have all won prizes out of computation from the Royal downwards all over the country. Rose of York, owned by Capt. Tennant, to which was awarded the prize for heifers under two years old, was not at Wetherby, but she has over and over again succeeded in turning the tables upon the prize takers at that show. The jumping of the horses brought about a deplorable accident. Just as the two immense grand stands were filling with people for this sight, the throng congregated around the barrier was horrified at seeing the principal platform suddenly collapse. Instantly the greatest confusion and excitement prevailed. It seemed impossible but that amongst that surging mass some would never emerge alive. By what appears little

short of a miracle, only one single limb was broken, the thigh of one of Dr. Holdsworth's children. Numbers, however, sustained heavy shocks and were much bruised.

### CATTLE.

Bull, any breed, two years old and upwards.—1st, £4, Lady Pigot, Newmarket; 2nd, £2, J. Lynn, Stroxtan. Highly commended: Major Staplyton, Boroughbridge.

Bull, any breed, under two years old.—1st, £4, J. Cattley, Stearsby, York; 2nd, £2, Lady Pigot, Newmarket. Highly commended: J. Lynn, Stroxtan, and J. Robertshaw, Allerton.

Cow, three years old and upwards (in calf or milk).—1st, £3, Lady Pigot, Newmarket; 2nd, £2, W. Linton, York. Cup: Lady Pigot, Newmarket. Highly commended: Capt. Tennant, Scarcroft Lodge.

Heifer, above two and not exceeding three years old (in-calf or milk).—1st, £3, J. Lynn, Stroxtan; 2nd, £2, J. W. Botcherby, Darlington. Highly commended: L. J. Crossley, Halifax.

Heifer, under two years old.—1st, £3, Capt. Tennant, Scarcroft Lodge, Leeds; 2nd, £2, Crawshaw and Blakeley, Dewsbury.

Cow for dairy purposes.—1st, £3, T. Riley, Mytholmroyd; 2nd, £2, L. J. Crossley, Halifax. Highly commended: T. Boston, Wakefield.

**EXTRA STOCK.**

Society's silver medal for the best animal.—**Eli Fearnside**, Netherton.

The President's cup.—**Mr. Brierley**, Middleton.

**SHEEP.**

Ram, any breed, two shear or upwards.—1st, £3 and cup, **T. H. Hutchinson**, Catterick; 2nd, £2, **J. F. Moorhouse**, Penistone.

Ram, any breed, one shear.—1st, £3, and 2nd, £2, **T. H. Hutchinson**, Catterick.

Ram lamh.—1st, £2, and 2nd, £1, **T. H. Hutchinson**, Catterick.

Pen of three ewes, having suckled lambs in 1868.—1st, £3, **W. Brown**, Highgate; 2nd, £2, **J. Simpson**, Wetherby.

Pen of three fat shearing wethers or gimmers.—1st, £3, **T. H. Hutchinson**, Catterick; 2nd, £2, **W. Brown**, Highgate.

**EXTRA STOCK.**

Society's silver medal for best pen of sheep.—**Capt. Gunter**, Wetherby.

**PIGS.**

Boar, small breed, any age.—1st, £2, **P. Eden**, Salford; 2nd, £1, **J. and W. Sagar**, Lister Hills.

Boar, any other breed, any age.—Cup, **J. Dyson**, Leeds; 1st, £2, **R. E. Duckering and Son**, Northorpe; 2nd, £1, **J. and W. Sagar**, Lister Hills.

Boar, any breed, under 12 months old.—1st, £2, **P. Eden**, Salford; 2nd, £1, **J. and W. Sagar**, Lister Hills.

Sow, small breed.—1st, £2, **P. Eden**, Salford; 2nd, £1, **T. Atherton**, Liverpool.

Sow, any other breed, any age.—Cup, **P. Eden**, Salford; 2nd, £1, **R. E. Duckering and Son**, Northorpe.

Gilt, any breed, under 12 months old.—1st, £2, **J. Dyson**, Leeds; 2nd, £1, **J. and W. Sagar**, Lister Hills.

Store middle breed.—1st, £2, **J. Newton**, Chapelton; 2nd, £1, **J. and W. Sagar**, Lister Hills.

Small breed, any age.—Cup, **J. Dyson**, Leeds; 2nd, £1, **R. E. Duckering and Son**, Northorpe. Commended: **H. Crossley**, Halifax.

**LABOURING MEN'S PREMIUM.**

Lady Margaret Beaumont's prize for the best store pig, any age or breed.—1st, £2, **G. Bonson**, Wakefield; 2nd, £1, **J. Roberts**, Wakefield.

**HORSES.****Draught or Agricultural.**

Two-year-old Gelding or Filly.—1st, £3 10s., **F. Eccles**, Standbridge; 2nd, £1 10s., **J. Atkinson**, Lake Lock.

Brood Mare and Foal.—1st, £3 10s., **T. Makea**, South Milford; 2nd, £1 10s., **J. Riley**, Flockton Mill.

Mare or Gelding, any age, for dray purposes.—**W. B. Beaumont**, cup, **J. and J. Charlesworth**, Chapeltorpe; 2nd, £2 10s., **Crawshaw and Blakeley**, Dewsbury.

Mare or gelding, any age, for agricultural purposes.—1st, £4 10s., **J. Upton**, Tadcaster; 2nd, £3 10s., **J. and J. Charlesworth**, Chapeltorpe; highly commended, **S. Thompson**, Selby, and **J. Upton**, Tadcaster.

**Roadsters.**

Two-year-old Gelding or Filly, for road or field.—1st, £3 10s., **B. M. Duffin**, Wakefield; 2nd, £1 10s., **Thos. Speight**, Cleckheaton.

Brood Mare and Foal.—1st, £3 10s., **Executors of J. W. Rhodes**, Huddersfield; 2nd, £1 10s., **H. Wilson**, Leeds.

The Borough Member's (**W. H. Leatham**, Esq.) silver cup, for the best Hackney Mare or Gelding, any age.—Cup, **J. Robson**, Old Malton; 2nd, £3 10s., **B. Norton**, Huddersfield; 3rd, a double-reined bridle, **J. Gresham**, Bradford; highly commended, **T. Fildes**, Manchester.

The Society's silver cup, for the best Cob Mare or Gelding, any age, above 13, and not exceeding 14½ hands.—Cup, **C. E. Charlesworth**, Wakefield; 2nd, £3 2s., **W. Stephenson**, Newbald; 3rd, a double-reined bridle, **H. Crossley**, Halifax.

Pony, any age, not exceeding 13 hands.—1st, £3 10s., **H. Ashton**, Prestwich; 2nd, £1 10s., **M. Rook**, Liversedge; highly commended, **E. Green**, Wakefield.

The Society's silver cup, for the best Mare or Gelding for harness purposes.—Cup, **J. Knowles**, Wetherby; 2nd, £3 2s., **P. G. Skipworth**, Wakefield; commended, **Dr. Haigh and Sons**, Tadcaster.

The Vice-President's (**Mr. A. W. Stanfield**) silver cup, for the best Mare or Gelding, any age, suitable for a lady's hackney.—Cup, **E. Green**, Wakefield; 2nd, £3 2s., **B. Norton**, Huddersfield.

The Society's silver cup, for the best Mare or Gelding, Hunter, any age.—Cup, **W. Stevenson**, Newbald-Brough; 2nd, £3 2s., **H. W. Jackson**, Wakefield; 3rd, a gold-mounted riding-whip, **A. J. Brown**, North Elmsall; highly commended, **J. C. D. Charlesworth**, Chapeltorpe Hall, and **B. Nicholson**, Garforth.

The Committee's silver cup, for the best Mare or Gelding, Jumper, any age.—Cup, **Brady Nicholson**, Starton Grange; 2nd, £3 10s., **A. J. Brown**, North Elmsall; 3rd, silver-mounted riding-whip, **J. M. Andrews**, Dewsbury.

**EXTRA STOCK.**

Horse....1st, Society's silver medal, **J. Green**, jun., Hemsworth.

**BEDALE AGRICULTURAL SOCIETY.**

The tenth show of this society was held on Thursday, Sept. 3, at Bedale, the site lent for the purpose being in the park of Mrs. B. Peirse. The exhibition of cattle, horses, and other stock was very good. The principal prize offered was a silver cup, which was given by Mr. F. A. Milbank, M.P., for hunters, and the winner of this was Mr. Booth's chestnut horse, Bird of Passage.

**JUDGES.**

For Cattle, Sheep, Pigs, and Boats.—**R. Willis**, Carperby; —**Carter**, Leighton; **T. P. Outhwaite**, Goldsborough.

For Horses.—**E. Wady**, Brompton; **J. Sadler**, Low Field; **J. Johnson**, Brigham, Driffield.

**AWARD OF PRIZES.****SHORTHORNS.**

Best two-year-old bull and upwards.—First prize, £1 10s., Mrs. B. Peirse, Bedale Hall; second, 10s., Mr. Raw, Mile House, Masham.

Bull calf.—First prize, £1 10s., **T. H. Hutchinson**, Catterick; second, 5s., **R. Jackson**, Ainderby Myers.

Cow, in calf or milk.—First prize, £1 10s., **G. Morton**, Bedale; second, 10s., **T. H. Hutchinson**.

Two-year-old heifer, in calf or milk.—Prize, £1 10s., **T. H. Hutchinson**.

Heifer calf.—Prize, £1, **T. H. Hutchinson**.

**SHEEP.**

Aged ram.—First prize, £1 10s., **T. H. Hutchinson**; second, 10s., **T. H. Hutchinson**.

Shearling ram.—First prize, £1 10s., **T. H. Hutchinson**; second, 10s., **T. H. Hutchinson**.

Tup lamb.—First prize, £1, Mr. Raw, Mile House, Masham; second, 5s., **T. H. Hutchinson**.

Pen of five ewes, having reared lambs in 1868.—First prize, £1 10s., **J. Hough**, Mudd Fields; second, 10s., Mr. Hutchinson.

Pen of five shearing gimmers.—First prize, £1 10s., Mr. Hutchinson; second, 10s., Mr. Hutchinson.

Pen of five gimmer lambs.—First prize, £1 10s., **J. Hough**; second 10s., Mr. Hutchinson.

**HORSES.**

Colt foal for the field.—First prize, £1 10s., **E. Tranmer**, Deepdale; second, 10s., **I. Slater**, Roundhill.

Filly foal for the field.—First prize, £1 10s., **E. Carter**, Figgall; second, 10s., **A. Parker**, Salmon House.

Yearling gelding for the field.—First prize, £1 10s., **G. Meynell**, Patrick Brompton; second, 10s., **J. Johnson**, Newton.

Yearling filly for the field.—First prize, £1 10s., **R. Stirke**, Bellerby; second, 10s., **J. Johnson**, Newton.

Two-year-old gelding for the field.—First prize, £1 10s., J. B. Booth, Killerby; second, 10s., Mr. Atkinson, Yafforth.

Two-year-old filly for the field.—First prize, £1 10s., R. Emmerson, Dinsdale Grange; second, 10s., J. Johnson, Newton.

Three-year-old gelding for the field.—First prize, £1 10s., B. Green, Aiskew; second, 10s., R. Green.

Three-year-old filly for the field.—First prize, £1 10s., W. Clarke, Thirsk; second, 10s., B. Manfield, Thirkeby.

Colt foal for coaching.—First prize, £1 10s., J. Inman, Boroughbridge; second, 10s., G. J. Robinson, Maunby.

Filly foal for coaching.—First prize, £1 10s., G. Meynell, Brompton; second, 10s., B. Little, Thrintoft.

Yearling gelding or filly for coaching.—First prize, £1 10s., G. Meynell, Patrick Brompton; second, 10s., B. Little, Thrintoft.

Two-year-old gelding or filly for coaching.—First prize, £1 10s., L. Manfield, Thirkeby; second, 10s., H. Robinson, Hauxwell.

Three years old gelding or filly for coaching.—First prize, £1 10s., M. Robinson, Hauxwell; second, 10s., Geo. Meynell, Patrick Brompton.

Colt or filly foal for roadster.—First prize, £1 10s., J. Williamson, Watlass; second, 10s., T. Mitchell, Scruton.

Yearling gelding or filly for roadsters.—First prize, £1 10s., G. Morton, Bedale; second, 10s., B. Stirke, Bellerby.

Two years old gelding or filly for roadster.—First prize, £1 10s., R. Stirke, Bellerby; second, 10s., J. Johnson, Newton.

Colt or filly foal for agriculture.—First prize, £1 10s., C. Baines, Catterick; second, 10s., Mr. Wilson, Watlass.

Yearling gelding or filly for agriculture.—First prize, £1 10s., H. Walton, Low Gingerfield; second, 10s., J. Johnson, Newton.

Two years old gelding or filly for agriculture.—First prize, £1 10s., J. Auton, High Pond House; second, 10s., G. J. Robinson, Maunby.

Pair of horses, of either sex, for agriculture.—First prize, £2, and second £1, John Johnson, Newton.

Mare for breeding hunters, with foal at her foot or stunted.—First prize, £1 10s., R. Stirke, Bellerby; second, 10s., John Johnson, Newton.

Mare for breeding coach-horses, with foal at her foot or stunted.—First prize, £1 10s., W. Mothersell, Thornton-le-Moor; second, 10s., J. Inman, Boroughbridge.

Mare for breeding roadsters, with foal at her foot or stunted.—First prize, £1 10s., Robert Emmerson, Dinsdale Grange; second, 10s., R. Stirke.

Mare for breeding agricultural horses, with foal at her foot or stunted.—First prize, £1 10s., G. Linton, Low Street; second, 10s., J. Johnson.

Mare or gelding of any age for a roadster, to be ridden on the day of show.—First prize, £2, R. Emmerson; second, 10s., B. Peirce, Bedale Hall.

Horse or mare pony, not exceeding 13½ hands, ridden on the show day.—First prize, £1, J. Wells, Bury Hills; second, 5s. Miss C. Wade, Hauxwell Hall.

#### PIGS.

Boar of the small breed.—First prize, 15s., J. B. Booth, Killerby; second, 5s., Mr. Webster, Thrintoft Park.

Sow, in-pig, small breed.—First prize, 15s., R. Todd, Park House; second, 5s., E. Shepherd, Aiskew.

Boar of the large breed.—First prize, 15s., George Morton, Bedale; second, 5s., Mr. Webster, Hill House.

Sow, in-pig, large breed.—First prize, 15s., J. Auton, High Pond House; second, 5s., J. Wilkinson, Bedale.

#### ◀ SPECIAL PRIZES.

Hunting mare or gelding, of any age.—First prize, silver cup, Mr. J. B. Booth, Killerby; second, £2, J. Harrison, Sedberge.

Colt or filly foal, by Young Dutchman.—First prize, £1, Mr. Greenhow, Ellerton Abbey; second, 10s., Mr. Masterman an Exelby.

## OXFORDSHIRE AND BANBURY AGRICULTURAL SOCIETY.

### MEETING AT BANBURY.

After a lapse of three years, in consequence of the cattle plague, the above societies held their meeting at Banbury this year, and the show was opened on Sept. 9th. The show was visited during the day by a great many agriculturists and others from the surrounding district. Although the entries in some of the departments were not so large as in former years, yet, as a whole, what was exhibited was good. The judges of stock were Mr. C. Howard, Biddenham; Mr. E. Little, Chippenham; Mr. C. Randall, Chadbury; Mr. S. Smith, Somerton.

### THE PRIZE LIST.

#### CATTLE.

Champion Prize.—Best horned animal in the yard, exhibited in either of the classes, silver cup, value £5 5s., J. How, Broughton, Hunts.

Champion Prize.—Best animal in the yard, exhibited by a tenant farmer, in either of the classes, a silver cup, value £5 5s., J. How, Broughton, Hunts.

Best bull, above three years old, £5, Mr. Calass, Bodicote House; second, £4, G. Garne, Churchill Heath.

Best bull, above two and under three years old, £5, T. Garne and Son, Broadmoor.

Best bull, above one and under two years old, £5, G. Garne, Churchill Heath; second, £3, G. Garne.

Best cow, above three years old, which shall have produced calf within ten months of the date of exhibition, £5, J. How, Broughton, Hunts; second, £3, G. Garne, Churchill Heath; third, £2, J. Baldwin, of Luddington, Stratford-on-Avon.

Best heifer, in milk or in calf, under three years old, £5, G. Garne, Churchill Heath; second, £3, C. W. Holbeck.

Best heifer, for breeding purposes, under two years old, £5, J. How, Broughton; second, £3, G. Garne, Churchill Heath.

Best cow, in milk, above four years old, £5, F. Lythall, Banbury; second, £3, J. W. Page, North Newington.

Best cow or heifer, under four years old, in milk, £5, J. Hutt, Water Eaton.

Extra Prize.—Best animal exhibited in the dairy classes, a silver cup, value £5, F. Lythall, Banbury.

#### EXTRA STOCK.

£2, T. L. Melville Cartwright, Newbottle, Highland ox.

£2, W. Calass, jun., cow.

£2, J. A. Mumford, Chilton Park Farm, Thame, Shorthorn heifer.

£1, Frederick Lythall, Banbury.

#### HORSES.

Best cart mare, with colt, £5, H. E. Coldecott, Lower Heyford; second, W. Denchfield, Banbury.

Best cart stallion, £5, W. Buller, Hanwell; second, £3, W. Iorns, South Lawn, Burford.

#### EXTRA STOCK.

£5, W. Gulliver, Swadcliffe, thorough-bred stallion, Chevalier d'Industrie.

W. Gulliver, Swadcliffe, thorough-bred mare, Zitella.

£2, T. C. Thomas, Banbury, pony.

#### SHEEP.

Best Oxfordshire Down shearing ram, £5, G. Wallis, Old Shifford; second, £3, G. Wallis.

Best Oxfordshire Down ram, above two years old, £5, G. Wallis; second, £3, J. Treadwell, Upper Winchenden.

Extra Prize.—Best of all Oxfordshire Down ram, plate, value £4 4s., G. Wallis, Old Shifford.

Best pen of five breeding Oxfordshire Down ewes, having bred lambs in 1868, £4 4s., Z. W. Stilgoc, Addebrury; second, £3, J. Treadwell, Upper Winchenden.

Best pen of five Oxfordshire Down shearing wethers, plate, value £3, Z. W. Stilgoe, Adderbury.

Best long-woolled shearing ram, £5, J. Wheeler, Long Compton; second, £3, J. Godwin, Somerton.

Best long-woolled ram, above two years old, £5, W. Cother, Middle Aston; second, £3, W. Cother.

Best pen of five breeding long-woolled ewes, having bred lambs in 1868, £4, J. Godwin, Somerton; second, £3, W. Denchfield, Banbury.

## EXTRA STOCK.

£2, G. Wallis, Old Shiford.

## PIGS.

Best boar, not less than 16 months, £4, R. E. Duckering Northorpe, Kirtton Lindsay, Lincolnshire; and extra prize of 3 guineas.

Best sow, above 15 months old, £4, R. E. Duckering.

Best sow, not exceeding 15 months old, £3, R. E. Duckering.

## ROYAL DUBLIN SOCIETY.

## SHOW OF SHEEP.

This, the first sheep show, was opened on Tuesday, Sep. 8, in the hall of the Society in Kildare-street, Dublin. Upwards of 470 sheep were entered, of which the ram section reached to 100. Mr. Owen's first-prize Leicester was recently imported from the flock of Lieut.-Col. Inge; and the second was also from England, the property of Mr. George Turner, of Uppingham. In the aged-ram class, Mr. Meade, Co. Cork, obtained the first prize for his imported Leicester ram, and Mr. Meade also obtained the first prize in the Leicester rams. In Border Leicesters, the prize Leicester ram at the Royal Show, Aberdeen, and also the winner of the Cork challenge cup at the Royal Irish Show at Londonderry, took the first prize. The show of Lincolns was creditable. For other long-woolled sheep all the prizes went to exhibitors from Roscommon. The Cheviot section was well filled, but Lord Clermont obtained the chief awards. In Shropshires Mr. Hamilton had all to himself; and in Siberian sheep, Mr. Wright, Co. Dublin, was the only exhibitor.

## PRIZE LIST.

JUDGES.—*Leicesters*: R. W. Cresswell, Ravenstown, Ashby-de-la-Zouch; J. Buckley, The Cottage, Loughborough; A. Warburton, Kill, Naas. *Border Leicesters*: G. Atkinson, Hall Farm, Seaham; R. H. King, Wooperton, Alwicks; Col. Fisher, Castle Grogan, Rathdowney. *Cotswold, Lincoln, and Long-woolled*: R. Glancy, Ballintubber; David Kerr, Edenderry. *Shropshire, Cheviot, and Short-woolled*: T. Horley, jun., The Fosse, Leamington; J. Woods, Clipstone Park, Mansfield; Richard Challoner, J.P., Moynalty.

## LONG WOOLS.

## LEICESTERS.

One-shear ram.—1st, £15, Wm. Owen, Blesinton; 2nd, £10, Geo. Turner, jun., Uppingham.

Ram of any other age.—1st, £10, Wm. R. Meade, Ballymartle, Ballinghasig; 2nd, £5, Thomas Marria, Lincolnshire; 3rd, first silver medal, Wm. Owen, Blesinton.

Five one-shear ewes.—1st, £10, Seymour Mowbray, Mounttrath; 2nd, £5, Thomas Marria, Lincolnshire; 3rd, first silver medal, Seymour Mowbray.

Five two-shear ewes.—First silver medal, Seymour Mowbray.

## BORDER LEICESTERS.

One-shear ram.—1st, £10, Robert G. Cooby, Stradbally Hall, Queen's County; 2nd, £5, Earl Fitzwilliam, Carnew; 3rd, first medal, Loftus H. Bland, Q.C., Blandsford, Abbey-leix.

Ram of any other age.—1st, £8, Earl Fitzwilliam, Carnew; 2nd, £4, T. Robertson, Athy; 3rd, first silver medal, T. Robertson.

Five one-shear rams, not competing in the foregoing sections.—1st, £8, M'Lachlan and M'Culloch, Bellegrave.

Five one-shear ewes.—1st, £8, Earl Fitzwilliam; 2nd, £4, M'Lachlan and M'Culloch; 3rd, first silver medal, R. F. Franks, Jerpoint Hill, Thomastown.

## LINCOLNS.

One-shear ram.—1st, £8, Caleb Going, Nenagh; 2nd, £4, J. Moffatt, Enniscoorthy; 3rd, first silver medal, Caleb Going.

Ram of any other age.—1st, £5, Caleb Going; 2nd, £3, ditto; 3rd, first silver medal, ditto.

Five one-shear rams, not competing in the foregoing sections.—1st, £5, Caleb Going, Nenagh.

Five one-shear ewes.—1st, £5, Caleb Going; 2nd, £3, ditto.

Five two-shear ewes.—1st, £3, Caleb Going.

## COTSWOLDS.

One-shear ram.—1st, £8, W. Hutchinson Carrol, Nenagh; 2nd, £4, ditto.

Ram of any other age.—1st, £5, T. Beale Browne, Gloucestershire; 2nd, £3, W. Hutchinson Carrol, Nenagh; 3rd, first silver medal, ditto.

Five one-shear rams, not competing in the foregoing sections.—1st, £5, T. Beale Browne, Andoversford, Gloucestershire.

Five one-shear ewes.—1st, £5, T. Beale Browne.

## LONG-WOOLS OF ANY OTHER BREED.

One-shear ram.—1st, £5, R. Coffey, Newcastle, county Westmeath; 2nd, £4, T. Roberts, Strokestown; 3rd, first silver medal, F. Page, Thurles, county Tipperary.

Ram of any other age.—1st, £5, T. Roberts, Strokestown; 2nd, £3, R. Flynn, Thiak, county Roscommon; 3rd, first silver medal, ditto.

Five one-shear rams, not competing in other sections.—1st, £5, T. Roberts, Farm, Strokestown; 2nd, £3, R. Coffey Newcastle; 3rd, first silver medal, D. Lynch, Strokestown.

Five one-shear ewes, not competing in the foregoing sections.—1st, £5, R. Flynn, Tulak, county Roscommon; 2nd, £3, W. Cotton, Castlereas.

Five two-shear ewes.—1st, £3, R. Cotton, Castlereas; 2nd, £2, T. Roberts, Strokestown; 3rd, first silver medal, R. Cotton, Castlereas.

## SHORT WOOLS.

## SHROPSHIRE.

One-shear ram.—1st, £10, C. W. Hamilton, Hamwood, Clonoe; 2nd, £5, ditto.

Ram of any other age.—1st, £5, Representatives of Smith Barry Estate, Fota Island, Queenstown; 2nd, £3, C. W. Hamilton, Hamwood, Clonoe; 3rd, first silver medal, Representatives of Smith Barry Estate.

Five one-shear rams, not competing in the foregoing sections.—1st, £8, Representatives of Smith Barry Estate.

Five one-shear ewes.—1st, £8, J. Richardson, Gleamore, Lisburn; 2nd, £4, ditto; 3rd, first silver medal, Colonel Tottenham, Killecole.

Five two-shear ewes.—1st, £4, J. Richardson, Lisburn; 2nd, £2, T. Butler, Prieststown House, county Meath.

## CHEVIOTS.

One-shear ram.—1st, £8, Lord Clermont; 2nd, £4, ditto; 3rd, first silver medal, ditto.

Ram of any other age.—1st, £4, Lord Clermont; 2nd, £2, ditto; 3rd, first silver medal, ditto.

Five one-shear rams, not competing in the foregoing sections.—1st, £5, J. M'Gregor, Dumfries.

Five one-shear ewes.—1st, £5, J. M'Gregor, Dumfries; 2nd, £3, Lord Clermont; 3rd, first silver medal, ditto.

Five one-shear ewes.—1st, £3, and 2nd, £2, Lord Clermont.

## SHORT-WOOLLED SHEEP OF ANY OTHER BREED.

One-shear ram.—1st, £5, Thomas Marria, Lincolnshire; 2nd, £4, T. Butler, Prieststown, county Meath.

Ram of any other age.—1st, £4, Thomas Marria, Lincolnshire; 2nd, £3, ditto.

Five two-shear ewes.—2nd, £2, T. Butler, Prieststown; 2nd, first silver medal, ditto.

## NORTH SHROPSHIRE AGRICULTURAL SOCIETY.

## MEETING AT WELLINGTON.

## PRIZE LIST.

## JUDGES.

**SHEEP.**—R. Masfen, Pendeford; S. Biggs.

**CATTLE.**—J. Meire, Shrewsbury; J. Forest, Tarporley.

**HUNTING HORSES, HACKS, AND COLTS.**—R. Cholmondeley; J. T. Phillips, Sheriff Hales.

**CART HORSES.**—Mr. Williams, Albrightlee; Mr. Lear, Market Drayton.

**IMPLEMENTS.**—Egerton Harding, Old Spring, Market Drayton; H. Stanley, Upton.

## CHEESE AND BUTTER.

For the best cheese.—First prize of £5, T. Simon, Tern Hill; second, T. Simon. Commended: J. Gouldbourn, Wilkesley, Burleydam.

For the best butter.—First prize of £1, J. Barber, Wellington; second, J. Gouldbourn.

## HORSES.

For the best leaping horse.—First prize of £5, G. Bowen, Walcot, Wellington; second, R. Blewitt, Cranmere Lodge, Wrottesley.

For the best stallion for agricultural purposes.—First prize of £5, J. Mills, Elephant and Castle Inn, Shrewsbury.

For the best mare, with foal, for hunting purposes.—First prize of £3, R. Ogle, Kynnersley Manor, Wellington; second, T. Furber, jun., High Offley, Newport.

For the best horse for saddle, harness, and general purposes.—First prize of £3, M. Williams, Dryton; second, J. Minor, Pym's House, Wem.

For the best colt, for the same purposes, foaled 1866.—First prize of £2, G. McKnight, Mossy Green, Oakengates; second, J. Edwards, Caynton Wood, Newport.

For the best mare, with foal, for agricultural purposes.—First prize of £3, St. John C. Charlton, Apley Castle.

For the best pair of horses for agricultural purposes.—First prize of £4, H. Smith, Eaton Constantine; second, Viscount Hill, Hawkstone.

For the best horse for agricultural purposes.—First prize of £3, J. Edwards, Eyton, Wellington; second, J. Shepard, Wellington.

For the best colt for agricultural purposes, foaled 1866.—First prize of £2, St. John C. Charlton; second, Mr. Higgins, Lubtree Park, Wellington.

For the best colt for agricultural purposes, foaled 1867.—First prize of £2, Mr. Felton, Long Lane Farm; second, J. Cooke, Trench Lodge, Wellington.

## CATTLE.

## SHORT-HORNS.

Bull, of any age (age to be taken into consideration).—First prize of £5, W. W. Derington, Chetwynd Villa, Newport; second, W. Dickinson, The Lloyds. Highly commended: E. B. Steedman, High Ercall.

Bull, calved 1867.—First prize of £4, T. Williams, Albrightlee. Commended: R. Dicken, Aston, Wellington.

Short-horn cow, of any age (age to be taken into consideration), having produced a calf in 1868.—First prize of £4, Viscount Hill; second of R. Dicken. Commended: Rev. H. Beckwith, Eaton, Constantine; St. John C. Charlton; Mrs. Higgins, Lubtree Park.

Heifer, calved 1866.—First prize of £3, Viscount Hill; second, St. John C. Charlton. Highly commended: Rev. W. Beckwith; commended: Mr. Wyley.

Pair of heifers, calved 1867.—First prize of £2, T. Burgess, Burleydam; second, St. John C. Charlton, Apley Castle.

## HEREFORDS.

Bull of any age (age to be taken into consideration).—First prize of £5, Mrs. Mary Allen, Hunkington, Salop; second, G. Pugh, Whethill, Wellington. Commended: B. Jones, Ensdon House.

Bull, calved 1867.—First prize of £4, M. Williams, Dryton; second, R. Tanner, Frodealey. Highly commended: Rider, Crudgington; commended: J. Harding, Bicton, Salop.

Cow of any age (age to be taken into consideration), having produced a calf in 1868.—First prize of £4, M. Williams; second, R. Tanner. Highly commended: E. H. Davies, Patton; commended: R. Tanner.

Heifer, calved 1866.—First prize of £3, M. Williams; second, R. Tanner.

Pair of heifers, calved 1867.—First prize of £2, M. Williams; second, T. Groucock, Bolas House.

Cow of any breed, for dairy purposes, having produced a calf in 1868.—First prize of £4, T. Burgess, Burleydam; second, J. Minor, Pym's House.

## SHEEP.

## SHROPSHIRE.

Ram of any age (age to be taken into consideration).—First prize of £5, H. Smith, Sutton Maddock; second, G. H. Wickham, Broom Hall Grange.

Ram, lambd in 1867.—First prize of £5, P. W. Bowen, Shrawardine Castle; second, G. H. Wickham. Commended: H. Smith.

Ram lamb, lambd in 1868.—First prize of £3, Mrs. Beach, The Hattons, Brewod; second, G. H. Wickham. Highly commended: Mrs. Beach; commended: H. Smith.

Pen of five ewes, of any age, each having produced a lamb in 1868.—First prize of £5, G. H. Wickham; second, H. Smith. Commended: Sir J. N. L. Chetwode, Oakley, Market Drayton.

Pen of five ewes, lambd in 1867.—First prize of £3, H. Smith; second, Hon. T. H. Noel Hill, Cronkhill. Highly commended: W. Fowler, Acton Reynald; commended: W. Fowler and G. H. Wickham (for two pens).

Pen of five ewe lambs, lambd in 1868.—First prize of £3, Mrs. Beach; second, R. Tanner. Highly commended: H. Smith.

## LONG-WOOLS.

Ram, lambd 1867.—Second prize of £1 10s., T. Furber, High Offley.

Five ewes of any age (age to be taken into consideration).—Second prize of £1 10s., T. Furber.

## PIGS.

Boar of any age.—Prize of £3, Viscount Hill, Hawkstone. Breeding sow, in pig, or with farrow of sucking pigs, not exceeding ten weeks old.—First prize of £3, B. Blore, Market Drayton; second, C. D. Hudson, Cheswardine Hall.

Farrow of pigs, not exceeding six months old.—Prize of £2 10s., the Wrekin Hotel Company, Wellington.

There were prizes for poultry and dogs.

The dinner was held in the Town-hall, the chair being occupied by the President of the Society, the Hon. R. C. HERBERT, who said there was an old proverb that every fool fancied himself to be a heaven-born general, and almost everybody fancied that he was by instinct a farmer. The first question he should refer to was one that had been discussed in the agricultural societies and a good deal in other places. It was as to the tenure of land. A great number of people said that it was essentially necessary to good farming that a long lease should be held by the tenant. Now, looking at Shropshire, he did not believe Shropshire farmers were much behind the rest of the world—a glance of the show of that day would prove that—and yet in Shropshire there were scarcely any leases. Many of their best farmers said they did not want leases. They said, "If we cannot trust our landlord without a lease, we'll not live under him with a lease." That, he thought, was a very sensible and a very wholesome sentiment. It was a sentiment that would unite the tenant and his landlord together by a tie of sympathy, and they would not deal



with each other solely with reference to the "almighty dollar." No tenant-right in existence, and none that could be brought into existence, could possibly be so beneficial to tenant and landlord, as that which arose from a feeling of sympathy and confidence between them. It was said that it was necessary, if people are to invest large capitals on their farms, that they should have leases. If rich people really wished to take farms, and to make experiments upon them, he, for one, should be most happy to see them; but if it was suggested that he should substitute these rich people for those farmers who had perhaps been living on the estate from generation to generation—for one or two hundred years—then, he said, let the rich people go. When leases run out the rent is most generally raised. When the Scotch tenant went to his landlord, after the expiration of his lease, to inquire about his future rent—"Oh! Sandy," said the landlord, "we'll just double it." Now, if tenants can show their landlord that, after the expiration of the lease, they are prepared to have their rents doubled, then he was sure there were plenty of landlords ready to grant leases for ten or twenty years, or even for centuries. There was another subject that he intended to refer to, although in expressing his opinion upon it he had no doubt he should not agree with many present. It was the question of the malt-tax. That had been said to be a farmer's question; but he ventured to doubt if it were so much a farmer's question as it was a question for the consumers of beer. There could be no doubt that it increased the price of beer, but he doubted much if it harmed the British farmer. He believed indeed that it acted beneficially by preventing a large quantity of inferior foreign grain from being malted. They ought also to look at it as to how it affected the beer-drinker. It was an acknowledged fact that good ale could not be brewed out of bad malt, and he believed if the malt-tax were abolished the consumer would get worse beer. Although he was in favour of "letting well alone," still, however, he did not think farmers ought to stand still and do nothing. He was sure that the farmers of this country were as little disposed to do so as any, and to prove it he appealed to the Chambers of Agriculture and other societies which had been established all over the country, in order to bring farmers together and to get them to combine for their own welfare. Looking back a number of years to the time when the Royal Agricultural Society was at Shrewsbury—many there perhaps remembered it, although he did not—he believed a great advancement was visible. The stimulus given at that time had shown a good result in their breed of sheep, which has made the name of Shropshire famous throughout

all England. The operations of a great society such as he last referred to were, he believed, usefully supplemented by such societies as they had had there that day. Such meetings as those gave the smaller and middle class of farmers an opportunity of competing one with another without their being overwhelmed by those who could afford to pay out of their immense capital for the most valuable stock.

Mr. J. B. O. GORE proposed the President. He complimented that gentleman upon the manner in which he had discharged the duties of his office, but could not agree with him in what had been said about the malt-tax. He (Mr. Gore) thought the English farmer had as much right to make the most he could of his produce as anyone else, and it was not fair that his produce should be unfairly taxed. If there was free trade for one there should be free trade for all. He could assure them he should, so long as he represented them, vote for the repeal of the malt-tax.

Mr. STEEDMAN proposed "The Judges," to which Mr. MAYNEN responded. In commenting upon the remarks of the President, he said, as to leases, he had no doubt, where the landlord was a good one, the sort of land-tenure referred to by the President was a good one, but no one could tell how soon a bad landlord might come into the good one's place. Then, again, although some landlords were to be trusted, others were not, and there was great difficulty at present in getting fair compensation for any outlay a tenant may make in his farm when he came to leave it. As for leases he did not care so much about them as a more liberal Tenant Right. He wanted more security for the man that laid out his capital on a farm. It was said that £5 per acre was sufficient to lay out upon land, but he should like to see a man farm well with less than double that sum invested in his land. Good security meant good farming, and good farming meant a large expenditure of capital. As to the Malt-tax, he considered that he had a right to do what he liked with his own, and he did not exercise that right when the Excise came and put its hand upon his malt before it was manufactured. The nearer that tax was levied to the point of consumption the better it would be for the consumer. He also referred to the rating question, alleging that only one-third of the property that ought to be taxed for local purposes was taxed. If they had an educational rate, as they were told they would have, it was especially necessary that the rating question should be satisfactorily settled. Another consideration, also, was this, that if they educated the labourer he would naturally require to be better housed than at present.

## TARPORLEY AGRICULTURAL SHOW.

The dull showery weather on Friday told unquestionably upon the attendance at this annual show, which, apart from this, and considering that the agriculturists of the district have scarcely yet recovered from the ravages of the disastrous cattle-plague, was a successful one. Mr. Willis's milk-white bull, which carried off the first prize at Wirral, was also successful here, and all the animals exhibited had merits. The sheep were well selected. Mr. John Cheers, of Barrow, carried off the prizes for the best long-wooled ram and shearlings.

The judges were: Cheese—Mr. Griffiths, Broken-cross, Northwich; pigs, sheep, and poultry—Mr. Rigby, Town-fields, and Mr. Dutton, Stanthorpe-hall; horses—Mr. Boote, Weston-hall, and Mr. Barker, Rushton.

### PRIZE LIST. CHEESE.

Best four cheeses, old or new, above 50lbs. weight each.—First prize, £5, Mr. Joseph Aston, Brasseay Green; second, £3, Messrs Vernon and Moss, Tiersford; third, £2, Mr. Thomas Finchett, Rushton.

Best four cheeses under 50lbs. weight each.—First prize, £3, Mr. Samuel Willis, Clotton; second, Mr. Edwin Woodward, Tarporley; third, Mr. John Johnson, Utkinton.

Best 6lbs. of butter (whey or cream).—First prize, £1 10s., Mr. Samuel Willis; second, Mr. Thomas Done, Eaton; third, Mr. Joseph Parry, Weetwood; fourth, Mr. William Willis, Rushton.

### STOCK.

Best bull, above two years old.—First prize, £3, Mr. George Willis, Ridley Hall; second, Mr. John Barker.

Best bull above one year old.—First prize, £3, Mr. James Hitchen, Rushton; second, Mr. J. Vernon, Willington.

Best pair of dairy cows, in-milk, which shall have calved between the 1st of January and the 1st of June, 1868.—First prize, £3, Mr. George Willis; second, Mr. John Barker.

Best dairy cow, in-milk.—First prize, £2, and second, Mr. George Willis.

Best pair of two-year-old heifers for dairy purposes.—First prize, £2, Mr. Thomas Finchett; second, Mr. George Willis.

Best pair of one-year-old heifers for dairy purposes.—First prize, £2, and second, Mr. John Barker.

Best bull calf.—First prize, £1, and second, Mr. George Willis.

Best pair of heifer calves.—First prize, £1, and second, Mr. George Willis.

### PIGS.

For the best boar pig of any age.—First prize, £1 10s., Mr. John Beckett, Prior Hayes, Tarvin; second, Sir P. de M. Grey-Egerton, Bart., M.P., Oulton Park.

Best boar pig under twelve months old.—First prize, £1 10s., Mr. Thomas Prescott, Foulk Stapleford.

Best breeding sow.—First prize, £1 10s., Mr. John Vernon; second, Mr. Thomas Oulton.

Best breeding sow.—First prize, £1 10s., Mr. Joseph Dilworth, Willington; second, Mr. Edwin Woodward, Tarporley.

## SHEEP.

For the best long-woolled ram of any age.—First prize £1, Mr. John Cheers, Barrow.

Best long-woolled shearing.—First prize, £1, Mr. Samuel Allen, Weaverham.

Best long-woolled ram lamb.—First prize, 10s., Henry Richardson.

Best short-woolled ram of any age.—First prize, £1, Mr. John Barker.

Best short-woolled shearing.—First prize, £1, Sir P. Egerton, Bart., M.P.

Best short-woolled ram lamb.—First prize, 10s., Sir P. Egerton, Bart., M.P.

Best three long-woolled ewes of any age.—First prize, £1, Henry Richardson, Huxley Hall.

Best three long-woolled shearings.—First prize, £1, Mr. John Cheers, Barrow.

Best three long-woolled ewe lambs.—First prize, 10s., Mr. John Cheers.

Best three short-woolled ewes of any age.—First prize, £1, Mr. John Barker.

Best three short-woolled shearings.—First prize, £1, Sir P. Egerton, Bart., M.P.

Best three short-woolled ewe lambs.—First prize, 10s., Mr. Thomas Finchett.

## HORSES.

For the best pair of horses for agricultural purposes.—First prize, £2, Mr. John Davies, Waverton; second, Sir P. Egerton, Bart., M.P.

Best brood mare and foal for agricultural purposes.—First prize, £2, Mr. Henry Willis, Burton; second, Mr. John Sheen, Eddisbury.

Best mare or gelding for agricultural purposes.—First prize, £1, Thomas Lowe, Calveley Hall, Handley; second, Lord Binning.

Best two-year-old colts for agricultural purposes.—First prize, £1, Mr. Thomas Dutton, Brindley.

Best one-year-old colt for agricultural purposes.—First prize, £1, Mr. John Beckett.

Best roadster of any age.—First prize, £1, Mr. James V. Brooks; second, Mr. Oliver Ellwood, Tarrin.

## THIN SEEDING.

SIR.—The time has once more arrived for preparing land for wheat-sowing; and I think it only right to send a few lines for insertion in your valuable columns, with regard to the superiority of thin over thick seeding.

It has been my good fortune to have a sound practical man as my neighbour (Mr. Lord, of Astwick Farm), and who has always assured me that one bushel of wheat planted per acre will beat two bushels. I was determined to try the new system, and have watched it carefully for the last three years, and can now honestly say that during that period I have always perceived a vast superiority of the thin plant, from its first appearance up to the day of harvesting.

Last year I accompanied Mr. Lord on to the property of Sir H. Dryden. One of his tenants, having been so struck by the healthy look of our wheat crops on light soil, was determined to try what would be the effect of thin seeding on his deeper and altogether better soil. The one bushel per acre was accordingly sown, and a strip in the middle of the field was left for thick seeding, both being planted on the same day and with the same seed. There were several farmers of the neighbourhood present at the same time; and they, of course, according to ancient prejudice, were prepared to wager on the old system.

The difference between the plants throughout the past year has been most remarkable, the strip of thick-sown wheat having always had a yellow, sickly look by the side of the more vigorous thin-sown plant.

Notwithstanding this year having proved one of the best on record for thick-seeders, there having been no storms or wind to lay the corn, the result has proved a perfect success for the one bushel per acre. The strip of thick seeding was measured, and found to contain 2ch. 18po.

Another strip of the same quantity of land was then measured off alongside of the other, and both were reaped together.

The thick seeding contained 44 dozen and 2 sheaves; the thin, 30 dozen and 10 sheaves. They were then thrashed separately; and the yield of the thick was only 1,599lb. of corn, while that of the thin was 1,748lb.—a balance in favour of the latter of 149lb., and greatly superior in quality.

The field is about 14 acres; and the average will be from 5½ to 6 qrs. per acre—much above the yield of any other wheat-crop on his farm.

My neighbour was a thin-seeder some time before Mr. Meechi commenced writing on this subject, and since then has always read that gentleman's letters with much interest.

All our wheat-land this year—say 160 acres—will be planted with from three pecks to one bushel per acre, at 10in. apart; and the land is now in process of preparation to receive the seed.

My chief object in writing this is to show how absurd is

the practice of throwing away so much seed every year, the saving of which would be most valuable to the country at large, and to the poor in particular, by lowering the price of corn, and thereby enabling the public to procure a cheaper loaf.

I remain, your obedient servant,

B. RAMSAY (in the Times).

Croughton, Brackley, Sept. 11.

Mr. Meechi, in confirmation of the above, writes as follows: "I am glad to see a reference to the important agricultural and national question of thin seeding. In former times when seed was broad-casted, land undrained, no blowing or dressing machines to extract light or imperfect kernels, and no preparing of the seed, it was necessary to sow large quantities, but now that each grain is perfect, is properly deposited in the soil by the drill, is not rotted by stagnant water in undrained soils, and is properly prepared to resist smut, it has become absolutely necessary to diminish the quantity of seed, for nearly every kernel grows. It is evident that these altered circumstances have not generally been duly considered, for, according to Mr. Caird's valuable statistics (first published in your columns), the quantity of seed sown in England is: Wheat, three bushels per acre; barley, four bushels per acre; and oats, five bushels per acre.

"An intelligent young Scotch farmer from Forfarshire told me the other day that he broad-casted four bushels of wheat, five bushels of barley, and seven bushels of oats per Scotch acre, and expressed his astonishment at seeing my wheat so thick and strong from only one bushel per acre.

"Mr. Caird estimates the return as only nine kernels for one sown. My 73 acres of wheat, sown with one bushel per acre, will yield more than 48 bushels for one.

"Each farmer should arrive at a conclusion suited to his soil and climate by the trial of diminished quantities on half-acre pieces. This has enabled me to suit the quantity of seed to my soil, climate, time of sowing, and circumstances.

"In the United Kingdom we have 11,500,000 acres under corn crops. The useless and injurious excess of seed must therefore cause a loss to the country of several millions sterling.

"The nature of the wheat is to branch out horizontally in the spring. If crowded and cramped (like an unthinned plantation), it runs up weakly and vertically, and especially in moist seasons, gets laid injuriously both to quantity and quality.

"I never sow more than six pecks of barley and eight pecks of oats per acre. From trial half-acres of wheat with only one peck per acre the return has been 232 for one; but I do not recommend so small a quantity for general use.

"P.S.—Our Essex farmers are gradually diminishing their quantity of seed."

## CALENDAR OF AGRICULTURE.

The harvest of grains is protracted into this month only in the farthest northern parts of the kingdom, and claims no general or special notice beyond what has been given. The crops are cut and secured in the common way.

This month is the general time of sowing wheat. Plough the clay furrows that have summer wrought and dunged, and sow by hand or drill machine the seed at the rate of 2 or 2½ bushels to an acre, prepared by steeping in stale urine, salt brine, or any similar corrosive, the light grains skimmed off, and encrusted with hot lime in powder, to dry and separate the pickles for sowing. Cover the seed by a harrowing of three times, and draw the water furrows at the end of the sowings nightly where required. Make open cuts by plough furrows and by the spade; put all fences and gates in repair; and shut up the sown fields for the winter.

Prepare by fallowing the lands that are intended to be planted with early root crops—as potatoes and beet.

Raise potatoes from the ground, by first pulling the haulm by hand, and carrying it to the cattle-yards as litter; then digging the land and throwing out the tubers with forks of three prongs, which pierce the ground, opening it for the permeation of air and moisture, which is a chief benefit the land derives from digging over the plough, which sledges the bottom of the furrow and shuts the openings and orifices of transmission, and very much on damp lands with a subsoil of wet clays and concreted gravels. The tubers are carried to the home-yard, and placed in round piles or longitudinal ridges of four feet in height, and covered with earth: better with turf and thatched with straw, the roof being used in thickness to debar the frosts of the locality.

In storing potatoes the chief object is to prevent as long as possible the germination of the tubers in the spring, which wastes the composition and exhausts the plant, either for being used as seed or for domestic purposes. A degree of warmth is required to produce germination, which is afforded by the close covering of earth, and even in an excess that causes a feeble store of tendrils under the roof of earth and thatch. A dry cool air in a position that is cold rather than warm, with little moisture, so as to render absent the chief elements of organic life, will be got by a slope roof of spars that covers the potatoes without touching, and on which the thatch is laid, in thickness to exclude the frosts that prevail, and in extreme cases to be covered with the straw dung from the stable-door, as dry light bodies best resist the penetration of frosts. A roof of spars will last for many years, and will prevent the early germination of the tubers, preserving the better quality for domestic use, and giving the great advantage of the first germination for the seedling shoots in the field, which are ever the healthiest and most vigorous.

Mangold wurtzel, carrots, and parsnips are

dressed clean by hand-sickle from earth, fibres, and tops, placed and built into piles as potatoes, and covered with a thatch of straw, avoiding the covering with soil, unless for an early use of the roots. Cabbages are cleaned from the stems, being cut away from the joining with the head, the outer leaves are removed, the heads are built into a stack as cannon balls, with one head on the top as a ridge, and thatched with straw. No roots are to be stabbed with a fork in being placed in cart or otherwise, as putrefaction will follow the incision.

Remove the crop of Swedish turnips from the lands of clayey loams, plough with one furrow, and sow wheat immediately, and on the potato lands now cleaned from the crop. Give the tops of the turnips and beet-root to the store cattle and sheep in the fields; moderately at first, to prevent hoving.

In the end of the month plant potatoes on freshly fallowed lands in wide drills of 30 inches, to be deeply covered over the dung with two furrows of the plough, to protect against the winter frosts. The crop will be earlier and more abundant than from the spring planting of potatoes.

Place the rams along with the ewes—1 to 50; each lot in a separate field. Give tops of turnips and of beet, to assist the pasture, which will much promote the salacity along with the previous fresh condition of the ewes. All aged, unsightly, and ill-shaped, and bad-throwers, and the ewes that missed lamb last year, must be rejected from the purpose of breeding, and there supplied from the ewe lambs of last year that are now eighteen months old. Much care and discrimination must be exercised in assorting qualities for propagation. Paint the brisket of the rams to mark the rump, which will show the time of impregnation and of lambing in the spring. Each fortnight can be arranged in this way, and the ear-mark of the ram that is used designates the progeny by the same distinction.

Sheep are anointed during this month with a liquid to prevent the rubbing and tearing the fleece and to kill vermin. In highland situations tobacco-liquor with extract of tar is run over the body of the sheep, in a bottle to each. In more lowland grounds the animals are dipped for a few minutes in Bigg's Composition dissolved in water, and then drying them on dry bare ground. It kills vermin and promotes the growth of the wool.

The lambs will require the assistance of artificial food by the end of the month, as grass will begin to fail. Place the animals on spaces of the turnip crop, divided by hurdles or flakes, and give fresh spaces every two or three days. The root shells of the bulbs must be picked up for use. The fattening flocks are treated in the same way: the store flocks more moderately.

Except in mild seasons, the cattle must be housed for the winter in yards with a shelter shed, in twos and four together of fattening animals, and six or eight of store beasts, in a yard which must have an ample supply of fresh-water. Supply the food

in turnips, rooted and topped, with fresh straw daily, placed in racks. The calves of the year must have a large encouragement in a roomy, warm yard; ample feeding in tops and small turnips, and fresh straws and hays to assist. All yards must be often littered thinly over the area.

Feed milch cows with chaffs of hays and straw, with a meal of beet and cabbages to begin the winter treatment, which may be steamed in roots and chaffs mixed. Juicy food is indispensable for the secretion of milk.

Swine must be placed for fattening: large bacon hogs two in a sty together, fed with steamed potatoes and meals, mixed twice a-day. The store pigs in a large yard with shelter sheds and a pond of water, thickly and warmly littered, are supplied with raw food, as potatoes and beet, and are pushed forward in condition to be drawn into the fattening sties. The steaming apparatus must be constantly employed in supplying the horses, cows, pigs, and poultry.

Poultry-houses must be clean and warm—a separate lodging to each kind of animal, with hatching-houses for each, and a shed in which the animals can eat the steamed potatoes and meals in

mixture, along with the light grains from the barn. These two kinds of food suit the narrow beaks of poultry and the shovel bills of ducks and geese.

The liquid manure pit must be ready to receive earthy and vegetable matters to absorb the urinary liquids. Clean out all the culverts that lead to the tank, which should be covered to exclude light, and thus promote putrefaction. The absorption of urine by earthy matters is the best use of the liquid.

In the end of the month sow winter vetches for an early spring crop with barley in mixture.

Plough grass leys for wheat, and sow during the month: press light lands and harrow and roll. Scuffle with a duck-footed grubber, as Coleman's grubber, the grattans of beans, peas, and vetches; collect, burn, and remove all surface rubbish; plough and sow wheat with one furrow. The lighter soils will remain from this preparation for barley or oats in the spring. Good farming will have the lands clean of weeds, and by applying a portion of farm dung with the wheat, will allow grass-seed to be sown in the spring, and introduce the management into the rotation of crops. But this cropping understands a very clean and hearty condition of the land.

## CALENDAR OF GARDENING.

### KITCHEN GARDEN.

Plant peas and beans with the chance of early crops. Transplant and sow hardy lettuce, according to the directions before given.

Cape brocoli requires early care, and as each head is cut the stump and leaves should be removed, and when dry burned into ashes, which are valuable as a manure. Spring brocoli plants should now be sloped down, their heads to the north, and earth brought up nearly to the leaves, or if in trenches, the stems should be landed up.

Cauliflowers in frames or under glasses must have abundance of fresh air in dry weather, and at the end of the month remove some of the best plants to beds or warm borders, to be covered by hand lights. Place three or four in a spot, making the earth firm about the roots and stems. Cover till growth be established, then give all the air possible in fine weather.

Plant hearting cabbage and coleworts early in the month. Tie up some some good plants of endive for blanching, and draw some fine earth about the stems. Thin-out winter spinach, and make the ground clean from weeds. Sow small salads once more, also a few Mazagan beans. Hoe and earth brocoli, cabbage borecole, and Brussels sprouts.

Cut over the decayed stems of mint, balm, thyme, and other sweet and aromatic herbs. Hoe the ground, and if needful, add a little good fresh earth to the spaces. Plant slips of the potherbs, and divide mint.

Dress asparagus beds into winter order—not waiting for the ripening of the seeds. If seed be wanted, select some of the best; but clear the bed

of it. Cut to within two or three inches all the haulm; remove every week, then dig trenches on each side a foot deep, and spread the earth over the beds or rows; turn the haulm into these trenches, treading it even at the bottom, and sprinkle half-a-pound of salt over it in every trench, twenty or twenty-five feet long; finally, fill the trenches to the ground-level with half-decayed stable-dung and leaves. The crown of the plants should be rather exposed than more deeply covered, by raking off and removing every weed. All enrichment must be made just before growth.

Seakale may be treated and the beds cleaned in the same way as asparagus: the leaves of every vegetable should be returned to the soil, but deeply buried. Rhubarb and artichokes are also thus mainly assisted, the dung in the trenches becoming admirable earth. Commence to excite asparagus in frames, and seakale also.

Beet-root and carrot are partially digged up, and stored in sand, for early use.

Raise potatoes, and store the tubers in a dry condition and in a dry place: the second early kinds, and all sorts of which the haulm is yellow. Cut rank haulms into short lengths, and carry it with all weeds and rubbish into the manure pit of liquids and vegetable growths. The land being pierced by the narrow and pointed prongs of the hand-fork in digging up the potatoes, will be open to the permeation of air and moisture—a very valuable benefit to the ground for future crops. Potatoes and all roots are best stored under the open air, in raised or oblong heaps, with a light covering of straw in thatch over-laid with earth or turf. The warmth of a house does not so well preserve the vegetable freshness.

Dress and clean all the quarters; trench and ridge; dig beds of heavy soil; prepare lands of all kinds, and incorporate manure.

The dung that has been collected in the dry compost of earths and lime, and the wet compost in the liquid-pit from vegetables, earths, and droppings, will now be ready for application, after having been duly prepared in both cases. The land is opened in trenches of 8 inches in depth, into which the manure is placed by hand-fork, and mixed with the soil. The mixture is much assisted by two quarts of guano to each barrow-load of compost manure. The fork is a tool of great utility for such purposes, and should be constantly used. The bottom of the trench may be covered with a layer of two inches of dung, which will supply a material to be dug up for the future crops as it is reached by the diggings of the ground.

#### FRUIT DEPARTMENT.

Trees and shrubs, deciduous and evergreen, are safely planted between the middle and end of the month. To do the work effectually, such ground should be well-drained into a dry bottom, and be trenched 15 inches deep. Lay dung or mulch over the soil; but avoid mixing manure with it, as top-dressings will be found the best of all manurings.

Gather and store apples and keeping pears: the latter require a warmer room than apples.

#### FLOWER GARDEN.

Plant auriculas in airy frames; camelias and heath in a cool, dry, well-ventilated pit or greenhouse; pelargoniums, cactuses, and the succulent plants in a house with a full south aspect. Reduce water in all the glass erections. Neatness in the open-air department and shrubbery is what is now chiefly to be attended to.

### FOREIGN AGRICULTURAL GOSSIP.

The chief topic discussed at the meetings of the French general councils this autumn may be said to have been roads, with which question may be also associated the subject of cheap local railways. The councils appear to devote rather too much time to the question, the solution of the problem being, after all, more a matter of time and money than anything else.—Complaints continue to be made of disease in beetroot in France; and one agriculturist has recorded a singular circumstance which he noted upon the subject last year. A perfectly uniform piece of land received over all its surface the same manure, the same tillage, and the same seed: the only distinction made was that half the piece was sown with beetroot a month before the other half. The disease prevailed with intensity in the part of the field which was sown first; in the other part no plant was affected. The first-sown beetroot came up well, and in the course of about three months they acquired, in roots and leaves, a considerable weight. They had accordingly extracted from the soil a much greater quantity of water than their neighbours sown under the same conditions, but a month later. A drought arrived; but the last-sown still continued to find in the soil the comparatively moderate quantity of water which was necessary to them, while the first-sown fell off more and more. Some time later, the drought still continuing, the later-sown beetroot began to suffer in their turn, and their lower leaves were turning yellow, when an abundant rain fell, just in the nick of time; upon this they regained vigour and reached their full growth in a perfectly normal state. In October the contrast was striking, as on the one side of the field the roots had a considerable size, while on the other side they were small and meagre. After all, it is not at all surprising that this year's beet-root crop should in so many cases have proved a disappointment, as admitting that beet-root with their leaves contain 90 per cent. of water, and that they weigh, say, 10 tons to the acre, it follows that they must extract 9 tons of water per acre from the soil; and if water is not present in the soil in that quantity, it cannot of course be extracted from it.—A prize of £40, given by the French Minister of Agriculture, Commerce, and Public Works, has been awarded for the first time this year for the best-directed "working" in the department of the Rhone. It was won by M. Fleury Targe, of the canton of St. Dennis Laval. On the occasion of the annual exhibition of the agricultural committee of St. Symphorien de Lay (Loire), the President, M. Augustin Crétin, gave an interesting sketch of the agricultural progress accomplished in the district since the formation of the committee. "Before 1840," said M. Crétin, "our stock of cattle scarcely attained 5,000 head. In 1852 it comprised 7,055 head, and in 1862 9,790 head. In 1866 it had declined, however, to 9,315 head, the cause of the diminution being the exceptional drought of 1865, which caused hay to be worth 5s. per cwt.; now, however, the stock of cattle in our canton must amount to more

than 10,000 head. The augmentation is thus about 5,000 head in the short period of twenty-eight years, representing an annual profit of about £16,000. In making this calculation, I strike an average—I reckon the working beasts for little; but I consider that the cows in profit, which are more numerous, produce double the amount indicated. I leave the straw and manure to be comprised in the increase of miscellaneous agricultural products. Before 1840 we had a deficit of 10,000 hect. of wheat; we have now a surplus of 18,000 hect. This makes a difference of 28,000 hectolitres, representing as estimated value of £21,280. I have estimated the yield in making this calculation at 7 hectolitres per hectare, but I believe this is a very low average, for information collected with care and my own experience have shown me that in this commune a hectare sown with wheat produces in an average year from 18 to 20 hectolitres of grain. According to an English economist, the yield per hectare is 18 hectolitres in Belgium, 21 in Holland, and 24 in England. In France, ministerial documents only estimate the yield at 14 or 15 hectolitres per hectare, a result which would seem to show that agriculture is still in a deplorable state in a great part of France. It proves also that we Frenchmen possess an immense amount of wealth in a latent state—wealth which only requires, in order to be developed, an active and intelligent system of cultivation. We in this district graze in our meadows from March to November about 500 head of cattle, which at £3 8s. each would represent £1,600; the profit derived from our poultry has increased to the extent of £800; the excess of our viticultural products in the six communes of our canton which cultivate vines is at least £1,600; that of potatoes, which are better cultivated and of more easy sale, thanks to the facility of transport afforded by railways, is £2,000; finally, the rearing and breeding of horses produces increased profits to the extent of £800. Let us recapitulate the increase in our annual profits as compared with 1840: Cattle, £16,000; wheat, £21,280; cattle grazed, £1,600; poultry, £800; wine, £1,600; potatoes, £2,000; horses, £800—total, £44,080. When we collect statistics, gentlemen, we must not write idly in the air. We must collect and combine with care all the elements with which we have to deal in order to arrive at a result which will approach as nearly as possible to the truth. I must, then, deduct from the total already given the value of the hay formerly consumed by about 200 horses employed in connection with the postal and diligence services. This, at £10 per head per annum, amounted to £2,000. We also sowed oats in greater quantity than we now do; and for this I must deduct £1,600. I must also deduct £400 for some flocks of sheep which have disappeared. These deductions will amount altogether to £4,000, and we have still left £40,000 as the increase in the annual agricultural profits of this canton, as compared with 1840. From all these totals, gentlemen, which can be discussed and controverted from but a single point of view—that of their insufficiency—what results? What but that a

district may be entirely transformed; and that, to accomplish this result, all that is required is example, emulation, and incessant and continuous labour?" We have been at some pains in reproducing this address, not so much from the intrinsic interest of the facts stated—although they are not without some value *per se*—as from the light thrown incidentally upon the progress of agriculture in France, and the intelligence now brought to bear upon it.—M. de Valbreuze, who presided at Chaleins over the annual exhibition of the Agricultural Committee of St. Buvier-sur-Moignans, in the Ain, impressed upon his auditors the importance of a large forage

production, and especially of the production of lucerne, which not only offers precious resources for the feeding of stock, but also now finds a very advantageous outlet in the southern districts of France. At the end of his speech M. de Valbreuze referred in terms of approval to the new Society of Agriculturists of France, the happy advent of which, he said, was hailed with enthusiasm by all the agricultural committees of the empire.—The growth of tobacco is stated to be diminishing in the North of France. The topic has formed the subject of discussion in the Lille Agricultural Committee.

## AGRICULTURAL REPORTS.

### GENERAL AGRICULTURAL REPORT FOR SEPTEMBER.

The past season has been of an almost unprecedented character. As regards the wheat crop the weather was eminently favourable for its full development, although at one time the want of rain threatened serious consequences, while at the time of harvest the brilliant sunshine afforded farmers every opportunity for getting in their crops in good condition. The yield in all well-farmed lands has consequently been extremely prolific, and the quality of the produce is very good. We have seen some excellent samples of white wheats weighing as much as 66 to 68 lbs. per bushel, and this is by no means the exception, the average weight on heavy lands being from 62 to 63 lbs. The crops were everywhere carried with extraordinary rapidity, the scarcity of labour being the only drawback, and the harvest operations were concluded fully a month earlier than the average of years. Throughout Scotland the same results have been realised; but in Ireland, owing to the inferior cultivation, the out-turn is inferior to that of the sister island. Under these circumstances, the general course of prices has been downwards; but, as we anticipated in our last report, the decline has been very gradual, and does not exceed 1s. to 2s. per quarter on the month. Farmers, as yet, have threshed out slowly and the supply of produce on offer has been limited. Nevertheless the Gazette returns show a large increase in the quantities sold, the sales of wheat during the past month having amounted to 367,843 quarters at an average price of 55s. 6d., against 186,370 quarters at an average of 63s. 3d. per quarter. Prices, therefore, must still be considered high, and the rates current here will be sure to attract heavy importations from abroad, which will certainly have a depressing influence in the quotations. Already considerable quantities of new Dantzic and other Baltic wheats have been in sale at Mark Lane, and the quality is generally very fine. Further shipments may be expected from the continent where the wheat crop has generally proved excellent. But the most important source of supply will be America, throughout which continent an enormous harvest appears to have been reaped. In California especially the yield is stated to be unprecedented, and we may expect large supplies from that quarter, the English markets being the most remunerative outlets for them. Unfortunately the freights from New York still range very high, which may operate as a check to speculators; but the demand will probably soon bring a competent supply of tonnage. The Fall movement of grain from the West has been on an extensive scale, being only limited by the carrying capacity of the canals and railroads. These movements must sooner or later act upon the English markets, and we look for a further considerable, though gradual, decline from present prices.

The stocks of grain in warehouse are on the increase, but are still much below their necessary level. We regret that some of the large granary firms have declined to furnish Mr. George Dornbusch with the information necessary to complete the statistics of the stocks in warehouse and in granary; otherwise we might have furnished some important information on this point. It is impossible to understand the refusal to supply the statistics required, as the regular publication of correct stocks would place the trade on a steady and independent basis; and would tend to prevent the recurrence of unnecessary panics. Full publicity could injure no legitimate interests, but it appears we cannot look for such without, as in the case of the Cotton Statistics Bill, the interference of the Legislature.

Barley has continued to meet a steady demand at very full prices. Some of the samples exhibited at Mark Lane have been of superb quality, while, on the other hand, many are hard and stony from the excessive heat. The market has been liberally supplied with foreign oats—principally Russian in bad condition—and prices have been subject to considerable fluctuation. Good sound corn, however, has been scarce and has commanded extreme rates. The yield of beans and peas having proved very unsatisfactory, the supplies in sale have been limited, and the quotations have been on the advance.

The broken weather at the commencement of the month had a surprising effect upon the pasture lands, and the grass grew with amazing rapidity. The return of heat, however, soon dissipated the moisture, and the fields again presented a scorched and blasted appearance. With the opening of autumn we have little to fear on this score, but the past season has been extremely unfavourable for graziers, owing to the difficulty of providing food for their stock. The crop of hay was unusually small, while turnips, mangolds, and the like have proved heavy failures. The quotations for such have gone to an extreme point, meadow hay realising in Smithfield market from £4 to £6; clover from £5 to £7; and straw, £1 10s. to £2 per load. The recent heavy rains will in some measure retrieve the failure of some of the root crops, but the season is too far advanced to look for any great improvement.

Hop-picking has been concluded throughout the plantations. Accounts differ as to the yield; but we are inclined to believe that it is a full average one, although far below the extravagant anticipations of a few weeks since. The quotations range low, sales having been effected in the Borough at from £3 to £7 per cwt. The yield of hops on the continent and in America appears to have been extensive, and, in the face of probably heavy importations, we do not anticipate any improvement in prices.

The state of the wool trade continues very unsatisfactory. The public sales of colonial produce have now been concluded, and the demand throughout has been languid in the extreme for all but superfine qualities. There has been a general absence of foreigners, while the home trade has operated to a less extent than usual. Large lots have been withdrawn in consequence of the low prices bid. In English wool there has been very little doing, owing to the large quantities of colonial produce on sale, and the quotations have ruled in favour of buyers.

The potato crop has turned out badly—probably one-third below the average. Owing to heavy shipments from abroad, however, the quotations in the London market have not ruled high, the prices realised being from 70s. to 170s. per ton.

### REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

The most prominent feature in the cattle-trade during the past month has been the promulgation of an order rendering the slaughter of all foreign sheep compulsory at the place of debarkation. It appears that small-pox is raging with much virulence on the Continent, and large numbers of the sheep imported have been suffering from that disease. The authorities, therefore, fully alive to the importance of preventing the spread of infection into this country, have wisely taken the precaution of forbidding the removal of sheep from the water-side. Notwithstanding the disadvantages under which

foreign graziers labour from the issue of this order, we continue to receive a fair supply, and as many as 7,000 head were collected at the water-side on Monday last. Bearing in mind the disastrous effects caused by the cattle-plague in this country, we cannot but admire the foresight shown by the Privy Council on the issue of an order by which, after the 25th inst., it will be unlawful to remove hay imported from the United States of America from the place of landing, except it be intended for the sole use of horses. In all cases it will be necessary to obtain a licence prior to its transmission into the country.

The late rains have wrought a great improvement in the general aspect of the country, and the appearance of the pastures is more encouraging. Nevertheless, the supply of grass is still very far short of requirements, and, as the root crops have turned out badly, large numbers of beasts have been received at market in a half-fat condition. On the whole the trade has ruled heavy, and prices have given way fully 4d. per 8lbs. The general top quotation has ranged from 5s. to 5s. 2d. per 8lbs., but in some few instances higher rates have been realized.

With sheep the market has been heavily supplied, and the quality of most breeds has been only middling. There has been very little inquiry for any description of mutton, and prices have been reduced 4d. per 8lbs. Prime Downs and half-breeds are now selling at 5s. to 5s. 2d. per 8lbs.

Fair supplies of calves have been offered. Generally speaking, prices have been supported, but the demand has been chiefly confined to choice breeds.

Prime small pigs have moved off freely at full currencies, but inferior breeds have been dull and drooping.

As the hay and root crops have been almost a failure, the outlook for food for winter consumption is likely to be very great. It is therefore not at all improbable that the range in the value of animal food will be much higher during the winter months than at the present moment.

The imports of foreign stock into London have been as under:

	Beasts	Sheep	Calves	Pigs	Head.
1867	11,082	32,472	2,100	774	4,500
1866	15,465	43,611	2,014	2,183	2,942
1865	12,553	67,640	2,152	3,192	2,434
1864	14,444	45,760	2,441	3,161	5,701
1863	11,923	48,021	2,759	3,213	2,691
1862	7,210	32,154	1,830	2,257	2,546
1861	6,759	34,870	1,366	2,323	3,214
1860	8,120	36,381	1,039	2,200	3,188
1859	6,966	37,783	1,353	1,744	1,895
1858	5,999	25,488	717	2,735	2,472
1857	7,846	24,090	198	1,953	2,087
1856	7,084	20,605	3,000	2,772	1,559
1855	7,161	22,744	613	1,046	2,266
Total	...	...	...	...	27,506

## COMPARISON OF IMPORTS.

Sept.	Beasts.	Sheep.	Lambs.	Calves.	Pigs.
1867	11,082	32,472	2,100	774	4,500
1866	15,465	43,611	2,014	2,183	2,942
1865	12,553	67,640	2,152	3,192	2,434
1864	14,444	45,760	2,441	3,161	5,701
1863	11,923	48,021	2,759	3,213	2,691
1862	7,210	32,154	1,830	2,257	2,546
1861	6,759	34,870	1,366	2,323	3,214
1860	8,120	36,381	1,039	2,200	3,188
1859	6,966	37,783	1,353	1,744	1,895
1858	5,999	25,488	717	2,735	2,472
1857	7,846	24,090	198	1,953	2,087
1856	7,084	20,605	3,000	2,772	1,559
1855	7,161	22,744	613	1,046	2,266

The total supplies of stock brought forward were:

	Beasts	Sheep	Calves	Pigs	Head.
Beasts	...	...	...	...	26,940
Sheep	...	...	...	...	157,440
Calves	...	...	...	...	2,643
Pigs	...	...	...	...	1,630

## COMPARISON OF SUPPLIES.

Sept.	Beasts.	Cows.	Sheep.	Calves.	Pigs.
1867	75,290	230	127,510	1,565	2,979
1866	26,560	100	129,430	1,984	3,120
1865	27,040	530	151,440	3,324	3,287
1864	30,910	560	137,490	3,184	3,700
1863	27,710	534	131,100	2,458	2,657
1862	28,074	526	139,270	2,364	3,031
1861	26,050	520	142,900	2,260	3,626
1860	27,080	500	144,450	3,309	2,922
1859	24,560	514	145,430	1,891	2,771
1858	27,446	533	131,150	3,210	4,281
1857	25,734	534	117,715	2,220	2,585
1856	24,002	485	132,014	2,452	2,800
1855	24,607	540	152,120	2,477	3,921

The arrivals from our own grazing districts, as well as from Ireland and Scotland thus compare with the three previous years:

From—	Sept. 1865	Sept. 1866	Sept. 1867	Sept. 1868
Lincolnshire, Leicestershire, and Northamptonshire .....	8,000	65,000	7,550	12,750
Other parts of England .....	2,800	3,790	2,770	1,990
Scotland .....	135	35	11	369
Ireland .....	1,150	335	1,040	332

Beef has sold at from 3s. 2d. to 5s. 6d.; mutton, 5s. 2d. to 5s. 4d.; veal, 3s. 6d. to 5s.; and pork, 3s. 4d. to 4s. 4d. per 8lbs., to sink the offal.

## COMPARISON OF PRICES.

	Sept., 1862.	Sept., 1863.	Sept., 1864.
Beef from ..	s. d. s. d.	s. d. s. d.	s. d. s. d.
3 0 to 4 8	3 4 to 5 0	3 4 to 5 0	3 4 to 5 0
Mutton ...	3 8 5 4	3 6 5 4	4 0 5 5
Veal .....	4 0 5 0	3 8 4 8	4 0 5 0
Pork .....	3 10 4 10	3 6 4 4	3 6 4 10
Sept., 1865.	Sept., 1866.	Sept., 1867.	
s. d. s. d.	s. d. s. d.	s. d. s. d.	
Beef from ...	3 4 to 5 8	3 6 to 5 6	3 2 to 5 2
Mutton ...	4 4 6 8	3 8 6 4	3 4 5 2
Veal .....	4 4 5 8	4 4 5 6	4 0 5 8
Pork .....	4 2 5 8	4 0 5 2	3 6 4 4

The supplies of meat at Newgate and Leadenhall have been extensive. The trade on the whole has been quiet at our quotations. Beef, from 2s. 10d. to 4s. 10d.; mutton 3s. to 4s. 8d.; veal, 3s. 4d. to 4s. 8d.; and pork, 3s. 2d. to 4s. 6d. per 8lbs., by the carcase.

AGRICULTURAL INTELLIGENCE,  
FAIRS, &c.

**ASHFORD MARKET.**—There was an unusually good supply of beasts. There were 3,310 sheep, and good ones sold without much difficulty; but the half-fat stock, which predominated considerably, could not be got rid of. Lean sheep, too, were quite a drag; some breeding ewes were sold at from 25s. to 30s. per head, and lambs from 10s. to 13s., but a great many pens went out of the market unsold. The prices of first-class wether mutton ranged from 4s. 8d. downwards, and of first-class barren from 4s. 4d. Beef was about the same as last week.

**BEAMINSTER FAIR** was thinly attended, the weather being very unfavourable. The show of beasts was moderate, and all of good quality sold well. The supply of sheep was unusually large, upwards of 7,000 having been penned. Trade was very dull, and prices were low. Pigs were rather scarce, with a slack trade. Wethers 27s. to 37s. each, lambs 17s. to 22s., and ewes 30s. to 38s.

**BIRMINGHAM FAIR** was but moderately supplied with fat beasts. The trade fair, at about late rates. Fat sheep and lambs a good supply; trade heavy. Calves a moderate supply. Fat pigs a limited number on offer. Store beasts of all kinds only a moderate supply, and the trade by no means active. Milch cows realised £18 to £24 each, barren beasts £9 to £13 each, yearlings from £4 to £6, store ewes from 30s. to 45s. each, lambs 15s. to 25s. each. There was a good show of rams, for which there was a fair demand; prices from £5 5s. to £8 5s. Good and useful horses were in good demand; inferior sold slowly.

**BOSTON SHEEP MARKET.**—There was an unusually large supply, but buyers being scarce trade was very dull, and prices considerably lower than last week. Stores were difficult to quit at any price. Mutton was 6½d. to 7d. per lb.

**BRIDGNORTH FAIR.**—There was an unusually large number of sheep; indeed, more than had been for a number of years. The competition for sheep was brisk. Good cows and calves fetched from £12 to £18, barrens £9 10s. to £13 fat heifers £14 to £18; fat bullocks £11 to £15. Some choice ewes belonging to Mrs. Wadlow fetched from 40s. to 45s. each. Mr. Instone 42s. to 49s., Mr. Massey 42s. to 46s., Lord Wadlock 36s. to 44s., and Mr. John Pritchard, M.P., 36s. to 42s. The sale of rams was very spirited, particularly of those by Mrs. Wadlow's, which made from £6 6s. to £16 16s.; and Mr. Wadlow's brought from £5 5s. to £13 13s.; and Mr. Pritchard from £7 7s. to £18 18s.; the others averaging rather more.



than £6 6s. Agricultural horses sold from £12 to £30, hacks from £8 10s. to £28.

**BURGH FAT STOCK MARKET** was well supplied. For first-class animals there was a good demand. Beef made from 8s. to 9s. per stone. For the best mutton full rams were obtained. Half-fed and store beasts and sheep were a heavy trade, but everything ready for the butcher was cleared off.

**CREDITON FAIR.**—The supply of bullocks was small. Store cattle did not sell very freely. Some prime fat beasts fetched 12s. per score. The supply of sheep was above the average; small wethers realized 6½d., large do. 6d., ewes 5½d.

**DUNDEE FAIR.**—The supply of cattle of all kinds was large, and of grazing Irish and home-beasts the show was unprecedentedly numerous, so far as this market is concerned. The price of fat may be quoted at from 9s. to 10s. 6d. per Dutch stone, according to quality. Generally speaking the market, in consequence of the extraordinary supply, might be characterized as very slow and stiff, although some of the dealers spoke of their being a fair demand for good cattle. At the close of the market a large number of grazing beasts did not change hands. Scarcity of winter keep is undoubtedly the cause of the market being in such an overflowing state with grazing stock. Of horses there seemed also to be a large supply, although the quality generally was rather inferior. Cart-horses brought from £28 to £50. The market was anything but brisk.

**ELGIN MONTHLY MARKET.**—The show of stock was large, consisting chiefly of keeping cattle. Very few fat, which met with a stiff sale in the early part of the day, although several changed hands in the afternoon at a slight decline from last market. An unusually large show of sheep, and several lots were sold at a considerable reduction. Mr. John Robertson, Knockando, sold a lot of two-year-old queys at £10 a head; Mr. Calder, Muirtown, a lot of two-year-old stots at £15 5s. a head; Mr. Thomson, Couston, a lot of two-year-olds at £15 5s.; Mr. Cameron, Knockando, a pair of two-year-old queys at £18; Mr. Lawson, Oldmill, three and two-year-old stots at £18 5s. a head; Mr. Reid, Loch-hill, a cow at £17 15s.; Mr. Clunas, flesher, New Elgin, a two-year-old stot at £16 15s.; Mr. McKessack, Miltonbrac, a lot of 14 two-year-old polled at £10 5s.; Mr. Gray, Duffus, 6 year-olds at £9 a head; Mr. Young, Scarfbanks, a lot of two-year-old stots at £19 10s.

**GLASTONBURY FAIR** was the largest we have had for some years past, but trade was exceedingly dull. Fat beef realised from 10s. to 12s. per score, grazers from £12 to £15 each, fat ewes and wethers 40s. to 42s., grazing ditto 30s. to 40s., store ewes 30s. to 36s., lambs 16s. to 26s. For cart horses the prices asked were from £22 to £35 each, and sucking colts from £12 to £18.

**GLOUCESTER MONTHLY MARKET.**—The general prices were: beef, 6½d. to 7½d. per lb.; mutton, 6d. to 7d. The sale was slow. Pigs were in good demand, at 10s. 6d. to 11s. per score.

**HAWICK TUP FAIR.**—Attendance very large, comprising stock-farmers from the whole Border district, north and south, and many gentlemen from the Highlands, distant parts of England, Wales, and Ireland, attracted by the prime Cheviot rams which the more celebrated breeders have generally on sale. Mr. Elliott, of Hyndhope, again carried off the honour of the market in respect to the number exposed and the highest price obtained. His average was a trifle below that of Mr. Archibald, Glengelt, but, considering that he had about three times the number, his return would be most remunerative. His highest priced tup (£27) became the property of Mr. Murray, Edinburgh, who bought another from the same lot for £25. The £20 tup of the Moorfoot lot was purchased by Mr. Dalgleish, Renneburn; the top animal in Mr. Aitchison's lot went for £16 to Mr. Pringle, Hindles; and the £10 10s. one, from Georgefield, was bought by Mr. Johnstone, Caplegill. Mr. Turabull, Spittal, a famous local breeder of Leicesters, scored the highest figure (£10 10s.) and also the highest average (£4 11s. 2d.). Prices in the private pens were—For Cheviots from £2 10s. to £5, and for Leicesters from £2 to £4.

**ILSLEY SHEEP FAIR.**—There were upwards of 100,000 sheep, being the largest fair ever known. The trade was frightfully dull, and prices were 6s. a-head lower than at the last fair three weeks before, or 3s. lower than at Wilton fair. Ewes were sold as low as 10s. 6d. a-head, and lambs

from 6s. upwards. A great many remained unsold, and it is said that at least 20,000 were never enquired the price of at all. Altogether the fair was the flattest and dulllest for years.

**LOCKERBIE FAIR.**—The second of the great autumn sheep trysts was held last week. The stock was estimated about 21,000 of all kinds, about 6,000 of which were half-bred lambs, about 10,000 Cheviot lambs, about 3,000 Cheviot ewes, and the remainder crosses and blackfaced. The stock generally was in good condition. Prices of all descriptions were up from August market. Half-breds from 2s. to 3s. 6d., Cheviot lambs 1s. 6d. to 2s. 6d., but in few cases were they doing more than pay for the keep since last market. In some instances half-breds would be making 1s. in addition to keep. Prices for best half-bred lambs ranged from 20s. to 25s., and in very rare cases up to 29s.; Cheviot top wether lambs 8s. 8d. to 13s., middling ditto 6s. to 8s., middling ewe lambs 8s. to 11s., cross lambs 10s. 6d. to 15s., Cheviot draft ewes 16s. to 21s., blackfaced ewe lambs 8s. 6d. to 10s. 6d. The show of cattle was the best that has been seen for several years. The demand was rather dull, being quite as much so as at Dumfries the preceding day.

**LEWES SHEEP FAIR** on Monday last was the most extraordinary fair, both as regards numbers and variation in prices, that has ever occurred here within the memory of living man, and the grand cause is the scarcity of feed. When the rains visited us just after harvest, it was loudly imagined that better things were in store for the breeders of sheep, and certainly an impetus was given to "feed," which encouraged the hope. However, the recent dry weather, and somewhat cold nights, have checked the growth of roots, greens, and grass, and there is now every probability that the old saying, "drought is not dearth in England," will, so far as meat is concerned, prove a fallacy. The demand for meat among the great bulk of the population increases every year, as the country grows in wealth, and higher wages are obtained by the classes whose means formerly precluded them from even a moderate diet of animal food, and therefore the drought will undoubtedly cause a dearth of meat during the winter months. The fair was the largest we ever remember, very few short of 37,000 being penned, and the prices ranged extraordinarily wide. The supply principally consisted of ewes and lambs, and tegs being very short in proportion to the bulk, they were sought after more readily. Among the few transactions effected in the forenoon, the first sale of tegs was that by Mr. Kirby, of Ringmer, who sold 103 wethers at 36s. 6d., which, according to the prices made afterwards, was about the average. Ewes were mostly poor, and the prices ranged between 16s. and 45s. per head. The only lot which fetched 45s. was a score of picked beauties, sold by Mr. Roods, of Stoneham. Mr. John Gorringe, of Birling, sold at 40s. The highest price obtained for lambs was 27s. 6d., which figure was given for 80 sent by Mr. Huth, of Possingworth. Mr. Gorringe, of Birling, made 27s. Of rams there was a very choice display by some of the best breeders in the county. Mr. Ashby, of East-dean, brought some very well-bred tups, of which he had no difficulty in disposing, at from 10 to 15 guineas. Some of his were bought by the Right Hon. Earl Amherst. The Messrs. Emery, of Storrington, had a large show of their famous breed, which sold and let, speaking generally, at prices ranging from 9 to 15 guineas; but one famous fellow was sold at 20 guineas to Mr. Field, of Kent. Mr. Stenning (Godstone), Mr. Hart (Beddingham), the Right Hon. H. Brand, Mr. Hamshar (Twineham), and Mr. Verrall (Swanborough), had also excellent assortments of stock sheep, for which good prices were obtained. During the morning trade was very dull, and many fine lots of ewes and lambs were not bid for; in the afternoon it slightly improved, but probably half were driven away unsold. The following figures will show the ruling prices of sheep and lambs, and the number at this fair, for the past 18 years:

Year.	Number.	Ewes.	Lambs.
1850 .....	28,000	22s. to 26s.	15s. to 20s.
1855 .....	30,000	25s. to 34s.	15s. to 25s.
1860 .....	30,000	30s. to 44s.	14s. to 30s.
1864 .....	24,000	30s. to 42s.	17s. to 32s.
1865 .....	16,000	34s. to 52s.	23s. to 40s.
1867 .....	29,000	30s. to 48s.	20s. to 32s.
1868 .....	37,000	20s. to 41s.	14s. to 27s. 6d.

There were several hundred head of runts and Herefords, but trade was stagnant.—Abridged from the *Sussex Express*.

## LINCOLN SEPTEMBER RAM FAIR.

The Fair took place on Friday, Sept. 18. The number of rams was in excess of previous years, and the demand was far from brisk. The consequence was that many of the animals were taken away unsold, and those disposed of were knocked down at prices considerably below their value.

**THE WELTON-LE-WOLD RAMS (Mr. Clarke's).—**Lot 1, Pinder 5*l.* 5*s.*; 4, Wilkinson, 4*l.* 5*s.*; 5, Grubb, 4*l.* 10*s.*; 6, C. Fieldsend, 7*l.* 15*s.*; 7, Pickwell, 4*l.* 5*s.*; 10, Ashton, 4*l.* 15*s.*; 12, Epworth, 6*l.*; 13, Hibbitt, 6*l.* 5*s.*; 14, Grubb, 4*l.* 10*s.*; 15, Epworth, 6*l.* 15*s.*; 16, Birkinshaw, 5*l.*; 17, Fieldsend, 6*l.*; 18, Ashton, 7*l.* 10*s.*; 19, Birkinshaw, 5*l.* 10*s.*; 20, Epworth, 5*l.* 5*s.*

**THE HOLBECK LODGE RAMS (Mr. Bett's).—**Lot 2, Steeper, 5*l.* 5*s.*; 4, Twidale, 5*l.* 5*s.*; 7, Epton, 8*l.*; 11, Baumber, 5*l.* 5*s.*; 12, Steeper, 5*l.* 15*s.*

**THE INGLEBY RAMS (Mr. Paddison's).—**Lot 1, Stevenson, 4*l.* 5*s.*; Gilbert, 5*l.* 15*s.*; 4, Copeland, 5*l.* 5*s.*; 4, Copeland, 6*l.* 10*s.*; 8, Gilbert, 8*l.* 10*s.*; Copeland, 5*l.* 5*s.*; 14, Copeland, 8*l.* 15*s.*

**THE DUNHOLME RAMS (Mr. Walker's).—**Lot 1, W. Borman, 6*l.* 5*s.*; 3, Frankish, 5*l.* 5*s.*; 4, Borman, 6*l.*; 7, Burkinshaw, 5*l.* 15*s.*; 8, Borman, 10*l.* 10*s.*; 9, Cade, 5*l.* 5*s.*; 10, Little, 5*l.* 15*s.*; 12, Borman, 6*l.*

**THE RANBY RAMS (Mr. Walsley's).—**Lot 1, West, 6*l.* 15*s.*; 3, Sands, 5*l.* 5*s.*; 5, Evison, 5*l.* 15*s.*; 6, Little, 18*l.*; 7, Evison, 9*l.*; 8, Lowe, 5*l.* 5*s.*; 10, Little, 7*l.* 15*s.*; 12, Ashton, 8*l.* 12*s.*; 13, Epton, 7*l.*; 15, Briggs, 5*l.* 5*s.*

**THE NOCTON RAMS (Mr. E. Howard's).—**Lot 1, Worth, 7*l.*; 2, Picker, 7*l.*; 3, Barnes, 5*l.* 10*s.*; 4, Parker, 5*l.* 5*s.*; 7, Frearson, 7*l.* 5*s.*; 9, R. Howard, 20*l.*; 10, Roberts, 5*l.* 5*s.*; 11, Bayles, 13*l.*; 12, Pinder, 5*l.* 5*s.*; 13, Hunt, 11*l.* 10*s.*; 14, T. Cartwright, 7*l.*; 15, Parker, 7*l.* 10*s.*; 16, Picker, 10*l.* 10*s.*; 18, Chapman, 5*l.* 5*s.*; 20, Graves, 18*l.*; 21, Mucklow, 9*l.* 10*s.*; 22, Howard, 7*l.* 10*s.*; 24, Fox, 6*l.* 5*s.*; 25, Chapman, 5*l.* 15*s.*; 26, Chapman, 8*l.* 10*s.*; 27, Hayles, 8*l.* 5*s.*; 28, Bellwood, 5*l.* 15*s.*; 29, Bellwood, 8*l.*; 30, Bellwood, 5*l.* 2*s.* 6*d.*

**THE NOCTON RAMS (Mr. Wright's).—**Lot 2, Jackson, 5*l.* 10*s.*; 5, Packe, 6*l.* 15*s.*; 9, Harrison, 30*l.*; 10, Watson, 7*l.*; 11, Cartwright, 10*l.*; 12, Barnes, 7*l.* 5*s.*; 13, Hunt, 11*l.*; 14, Wilson, 7*l.*; 15, Minto, 23*l.*; 16, Turner, 16*l.*; 17, Woodhall, 12*l.*; 18, Sergeant, 7*l.*; 19, Jackson, 19*l.*; 20, Cartwright and Allan, 7*l.*; 22, Graves, 10*l.*; 24, Barnes, 6*l.*; 25, Robson, 8*l.*; 26, Sergeant, 6*l.* 5*s.*; 27, Packe, 11*l.*; 28, Fox, 8*l.*; 29, Fox, 7*l.* 10*s.*; 30, Machin, 19*l.*; 32, Graves, 6*l.* 10*s.*; 33, Epton, 7*l.*; 34, Longstaff, 6*l.* 10*s.*; 35, Towle, 5*l.* 15*s.*; 36, Auckland, 9*l.* 10*s.*; 37, Epton, 5*l.* 10*s.*; 38, Jackson, 5*l.* 10*s.*; 39, Webster, 6*l.* 5*s.*; 40, Le Gard, 7*l.*; 43, Sneath, 7*l.*; 44, Hawk, 5*l.* 5*s.*

**THE THURLEY RAMS (Mr. Kemp's).—**Lot 1, C. Brooke, 7*l.* 5*s.*; 2, C. Brooke, 6*l.*; 4, Young, 8*l.* 5*s.*; 5, Little, 11*l.*; 6, Fletcher, 7*l.* 5*s.*; 7, Young, 6*l.* 5*s.*; 8, C. Brooke, 9*l.* 5*s.*; 9, Rowland, 23*l.*; 10, Godfrey, 6*l.* 10*s.*; 11, Young, 6*l.* 5*s.*; 12, Young, 7*l.* 10*s.*; 13, Godfrey, 7*l.* 10*s.*; 15, Young, 8*l.* 15*s.*; 16, Marshall, 6*l.* 5*s.*; 17, Pinder, Belmore, Retford, 5*l.* 10*s.*; 18, Ealand, 6*l.* 15*s.*; 20, Gilliat, 5*l.* 5*s.*; 21, J. Dudding, 5*l.* 5*s.*; 22, Clixby, 6*l.* 10*s.*; 23, R. Cross, 8*l.* 10*s.*; 24, Norwood, 6*l.* 15*s.*; 25, Wass, Worlaby, 8*l.* 10*s.*; 26, Young, 10*l.*; 27, Abraham, 5*l.*; 28, Cross, 7*l.*; 29, Dudding, 6*l.*; 30, Cross, 7*l.*; 31, James, 6*l.* 5*s.*; 31, Atkinson, Fillingham, 5*l.* 5*s.*

**THE BRANSTON RAMS (Mr. Harrison's).—**Lot 1, Stevenson, 6*l.*; 2, Setterington, 5*l.* 7*s.* 9*d.*; 3, East, 8*l.*; 4, Harrison, 6*l.*; 5, East, 7*l.*; 6, Morris, 7*l.*; 7, Marshall, 5*l.* 12*s.* 6*d.*; 8, Vickers, 8*l.*; 9, Grimes, 6*l.*; 10, Scott, 6*l.*; 11, Bradley, 9*l.* 5*s.*; 12, Grimes, 5*l.* 5*s.*; 14, Bacon, 5*l.* 15*s.*

**THE LAUGHTON RAMS (Mr. Casswell's).—**Offered by Mr. Lumley: Lot 1, Simmons, 5*l.* 5*s.*; 2, Evans, 9*l.* 5*s.*; 3, Wellows, 5*l.* 15*s.*; 4, Richardson, 7*l.* 10*s.*; 5, Weightman, 6*l.* 10*s.*; 6, Simmons, 6*l.* 5*s.*; 7, J. Harvey, 6*l.*; 8, Smith, Evedon, 8*l.*; 9, Willows, 7*l.* 10*s.*; 10, Hoeufft van Velsen, 10*l.* 10*s.*; 11, Moggs, 7*l.*; 12, Burt, 8*l.* 5*s.*; 13, G. Casswell, 6*l.* 10*s.*; 14, Simmons, 7*l.*; 15, Richardson, Digby, 7*l.*; 16, Laming, 8*l.* 5*s.*; 17, J. Harvey, 6*l.* 15*s.*; 18, Garnell, 5*l.* 5*s.*; 19, Spencer, 5*l.* 15*s.*; 20, Willows, 7*l.* 15*s.*; 21, Simmons, 5*l.* 15*s.*; 22, Moss, Whisby, 9*l.* 5*s.*; 23, Spencer, 6*l.*

## MR. RIGDEN'S SALE.

The annual sale of pure Southdown ewes and letting and sale of rams, the property of Mr. William Rigden, the celebrated breeder, took place at Hove, on Friday, Aug. 28. There was a large attendance of agriculturists. Mr. Edward Dravbridge submitted the various lots to competition. The best test of excellence in sheep is the prices they fetch. In most cases competition was brisk. The following prices were made

Five full-mouthed ewes, £5 10*s.*, Mr. Cane  
Five ditto, £5 10*s.*, Count de Bouilles  
Five ditto, £4 10*s.*, Mr. Peerless  
Five ditto, £4 10*s.*, Mr. Smith  
Five ditto, £6 5*s.*, Count de Bouilles  
Five ditto, £3, Mr. H. Arknell  
Five ditto, £4, Mr. Fox (London)  
Five ditto, £3 5*s.*, Mr. Rand  
Five ditto, £3 10*s.*, Mr. Fox  
Five ditto, £3 5*s.*, Mr. Chapple  
Five ditto, £3 5*s.*, Mr. Gibson  
Five ditto, £3 5*s.*, Mr. Rand  
Five ditto, £3 5*s.*, Mr. Faulconer  
Five ditto, £3 5*s.*, Mr. Gibson  
Five ditto, £3 10*s.*, Mr. Chapple  
Five shearing ewes, £5 10*s.*, Count de Bouilles  
Five ditto, £3 5*s.*, Mr. Coombebridge  
Five ditto, £2 15*s.*, Mr. Parkes  
Five ditto, £2 5*s.*, Mr. Parkes.

## RAMS FOR LETTING.

Three-years-old, by the second-prize ram at Battersea, 39 ga., Duke of Richmond.

Three-years-old, by Webb's 39, 15½ ga., Mr. Colgate.

Two-years-old, by Young Elegance (obtained the first prize at Brighton in 1867, and the first prize at Leicester, 1868), 56 ga., Lord Radnor.

Two-years-old, by ditto, 35 ga., Mr. Hugh Gorrington.

Two-years-old, by Son of Archbishop (obtained the second prize at Brighton in 1867), 18 ga., Mr. J. S. Turner.

Two-years-old, by ditto, 10 ga., Lord Hylton.

Two-years-old, by Young Elegance, 30 ga., Mr. Boby, Ipswich.

Two years old, by Son of Webb's 21, 16 ga., Mr. Hogg (Southampton).

Two years old, by ditto, 16 ga., Mr. Parks.

One year old, by Young Elegance (obtained the first prize at Leicester), 60 ga., Lord Walsingham.

One year old, by a son of Reserve, 46 ga., Lord Radnor.

Ditto, by ditto, 19 ga., Mr. Floss, Luton Park, Bedford.

Ditto, by ditto, 11 ga., Lord Hylton.

Ditto, by ditto, 11 ga., Mr. Francis, Cambridge.

Ditto, by a son of 39, 21 ga., Mr. Floss.

Ditto, by second-prize ram at Battersea, 46 ga., Mr. Barclay, Leatherhead.

## RAMS FOR SALE.

Three years old, by 39, dam a Webb ewe, 14 ga., Mr. Ashburner.

Two years old, by a son of Archbishop, 13 ga., Mr. W. P. Gorrington.

Two years old, by the first-prize aged ram at Brighton, 16 ga., Mr. Ashburner.

One year old, by Young Elegance, dam a Webb ewe, 21 ga., Mr. J. S. Turner.

Ditto, by ditto, dam a Goodwood ewe, 21 ga., Mr. Mills.

Ditto, by ditto, dam a Goodwood ewe, 19 ga., Mr. Carr Gibson.

Ditto, by Son of Reserve, 13 ga., Mr. Selby, Kent.

Ditto, by ditto, 19 ga., Mr. Farncombe.

Ditto, by ditto, 11 ga., Mr. Yate.

One year old, by Son of Reserve, dam a Webb ewe, 12 ga., Mr. Smith, Worth.

Ditto, by Son of Reserve.

Ditto, by ditto, dam a Heasman ewe, 10 ga., Mr. Carr Gibson.

Ditto, by ditto, 10 ga., Mr. Smith.

Ditto, by a son of 39, 21 ga., Mr. Barclay, Leatherhead.

Ditto, by ditto, 11 ga., Mr. Duke, Leominster.

Ditto, by ditto, 10 ga., Mr. Farncombe.

Ditto, by second-prize ram at Battersea, 11 ga., Mr. Barclay, Leatherhead.

Ditto, by ditto, 11½ ga., Mr. Fox.

## DUMBLETON STOCK SALE.

In consequence of the relinquishment by Edwd. Holland, Esq., M.P., of stock-breeding, and the letting of a portion of his estates, an important and extensive sale of shorthorn cattle, Shropshire sheep, horses, pigs, implements, &c., took place at the Cullabine farm, near the Ashton-under-hill station, on Wednesday, Thursday, and Friday. During the time Mr. Holland has pursued the occupation from which he now retires, he has spared no trouble or expense in introducing among his flocks and herds the best blood in the country: he is noted throughout the county, and far beyond it, as a successful breeder of stock; and his sale was on this, as on former occasions, attended by a large number of agriculturists and breeders from all parts of the country. Finer sheep and cattle than those on the Dumbleton estate are very seldom seen; and although at this sale many of the animals, owing to the unfavourable season, did not look their best, the appearance of the stock as a whole elicited from the best judges unqualified admiration.

The stock disposed of on Wednesday comprised 36 shearlings and 13 aged rams, 83 ram lambs, 390 breeding ewes, 145 theaves, 220 ewe, and 130 wether lambs. Rams were first put up; and among them were some splendid animals, for which the biddings were very spirited. The highest price was obtained for a three-shear ram, Royal Ranger, hired at the last sale by Mr. Randall for 25 guineas, the reserve number in class of aged rams, at the Royal Agricultural Society, Leicester, 1868, and considered by some to be second-best sheep in the class; Lord Sudeley was the purchaser at 46 guineas. A two-shear ram was bought by Captain Oliver for 35 guineas, and the average of the class was rather over £11. The ram lambs brought an average of £2 2s. The average price of the theaves was £2 8s. 6d., one pen of five fetching £6 6s., and another £4, and of the breeding ewes £2 5s.

Mr. Stafford commenced with Shorthorns on Thursday. The competition was not so brisk as on the preceding day, but all the animals were disposed of at the following prices:

Pharsalia, rich roan, calved Feb. 11, 1861, by Archduke; purchased by Mr. J. Ashmore (Norton), for 22 guineas.

Bijou 2nd, rich roan, calved March 4, 1862, by Seventh Duke of York; Mr. T. G. Cartler, 43 gs.

Queen of Hearts, red and white, calved May 12, 1862, by Lumley; Mr. Watson (Coleshill, Warwickshire), 40 gs.

Witch of Jersey, roan, calved May 27, 1863, by Lord Jersey; Mr. Price, M.P., 40 gs.

California 8th, rich roan, calved May 30, 1863, by 2nd Duke of Thorndale; Mr. Parr (Lancashire), 36 gs.

Countess of Jersey, roan, calved August 6, 1863, by Lord Jersey; Mr. Watson (Coleshill, Warwickshire), 29 gs.

Duchess of Dumbleton, rich roan, calved October 22, 1863, by Lord Jersey; Mr. Sowerby (Tewkesbury), 36 gs.

Lady Jersey, rich roan, calved January 5, 1864, by Lord Jersey; Mr. Sturgeon (Essex), 40 gs.

Nanny, rich roan, calved Feb. 13, 1864, by Lord Jersey; Mr. Sturgeon, 38 gs.

Queen of Dumbleton, rich roan, calved Oct. 6, 1864, by Lord Jersey; Mr. Sowerby, 29 gs.

Nell Gwynne, rich roan, calved Jan. 20, 1865, by Lord Jersey; Mr. Price, M.P., 50 gs.

Ninette, rich roan, calved Nov. 25, 1865, by Lord Jersey; Mr. Sowerby, 25 gs.

Princess Alexandra, rich roan, calved Feb. 26, 1866, by Lord Jersey; Lord Dunmore (Scotland), 44 gs.

Lady Carlotta 2nd, roan, calved Feb. 27, 1866, by Lord Jersey; Mr. Jos. Woodward (Birlingham), 40 gs.

Lady Constance, roan, calved May 27, 1866, by Lord Jersey; Mr. T. G. Cartler, 33 gs.

Lady Jersey 2nd, white, roan ears, calved Feb. 15, 1867, by Czarowitz; Mr. Firmstone, 22 gs.

Nellie, rich roan, calved May 4, 1867, by Czarowitz; by S. Smith, 18½ gs.

Water Witch, rich roan, calved in June, 1867, by Lord Jersey; Mr. Sturgeon, 20 gs.

Baroness Oxford, rich roan, calved Feb. 16, 1868, by Baron Oxford 2nd; Lord Dunmore, 40 gs.

Baroness Oxford 2nd, red and white, calved Feb. 20, 1868, by Baron Oxford 2nd; Sir G. Jenkinson, 15 gs.

Queen of Oxford, red and little white, calved Feb. 24, 1868, by Baron Oxford 2nd; Lord Dunmore, 29 gs.

Baroness Oxford 3rd, red, calved Feb. 24, 1868, by Baron Oxford 2nd; Mr. Burnett, 25 gs.

Baroness Oxford 4th, red and white, calved Feb. 26, 1868, by Baron Oxford 2nd; Mr. Monsell, 33 gs.

Patience, white, roan ears, calved July 11, 1868, by 2nd Duke of Wetherby; Mr. Price, M.P., 10½ gs.

## BULLS.

Cherry Grand Duke, red and white, calved May 13, 1865, by Grand Duke 7th; Mr. Randall (Chadbury), 51 gs.

Baron Oxford 3rd, rich roan, calved Feb. 18, 1868, by Baron Oxford 2nd; Mr. R. Tombs (Gloucestershire), 61 gs.

Baron Oxford 4th, red and white, calved March 10, 1868, by Baron Oxford 2nd; Mr. Williams, 38 gs.

Grand Baron Oxford, rich roan, calved March 6, 1868, by Baron Oxford 2nd; Mr. Swanwick (Cirencester), 44 gs.

Mr. Stafford then disposed of twenty-one extra cows and heifers, at prices from 18½ guineas downwards. After this sale the company proceeded to the sheep pens, where Mr. H. W. Smith put up a number of fat sheep, 22 pens of which brought £229. The prices varied from £2 14s. to £1 12s., the average being £2 1s. 7½d. Ten pens of long-woolled sheep realised an average of about 42s., the prices varying from 51s. to 35s. Five very superior two-shear wethers brought an average of £4 13s. About 750 fleeces of first-class wool was disposed of at 1s. 5d. per lb. Ten fat cows were then offered, and they fetched on the average £16 1s. 6d. each, the outside prices being £27 15s. and £11. The teams of horses came next; a bay horse, four years old fetched £59, another £43 10s., others at £41, £40, and £39 respectively, the remainder varying from £34 to £14. The celebrated roan cart mare, Royal Matchless, winner of upwards of thirty prizes, realised £50; and a yearling grey filly by this mare £29. Two handsome two-year-old roan colts brought respectively £37 10s. and £34; a bay harness horse brought £18 10s.; a brown nag horse, six years old, £38, and a cheanut cob, nine years old, £32 10s. A rick of old beans was disposed of for £100, and this concluded the day's sale. The sale resumed and concluded on Friday, when the superior Berkshire pigs, poultry, agricultural implements, marquee, fruit, &c., were disposed of.

THE SHROPSHIRE SHEEP SALE AT  
SHREWSBURY.

BY MR. PREECE.

At the autumn sale of rams and ewes the total number of sheep entered in the catalogue was nearly 3,000. Mr. Matthew Williams, of Dryton, had eight rams, one of which was sold for 13 guineas, one for 11 guineas, and others for lower prices. Mr. Tanner, of Frodesley, sold sheep for 20, 16, and 17 guineas, and others at lower prices. The Rev. C. P. Peters, of Pitchford, sold one for 13, one for 9, and one for 8½ guineas. Mr. John Evans, Uffington, had eighteen entered, and all, or nearly all, were sold. A shearing ram let for £21, and those sold averaged £14 14s. per head. Messrs. Crane, Shrawardine and Forton, had thirty-four entered, all of which were sold: "Shamrock" for 36 guineas, and the shearlings as follows, 32 guineas, 25, and 23 guineas, five at 20 guineas, and others at lower figures; the whole making an average of about 20 guineas per head. Mr. Pryse Bowen's stock also sold readily, there being thirty-five animals for sale, all of which found purchasers. A two-shear ram let for 25 guineas, one for 14, one for 11, a shearing for 16, and one for 20 guineas. Those sold brought 15, 14, 12, 11, and 10 guineas each, and some sold a little lower. Mr. Mansell, Adcott Hall, and Ercall Park, sold one for 30, one for 19, one for 17, and one for 15 guineas; the seventeen entered were all sold. Eleven of the rams of the Hon. and Rev. T. H. Noel Hill, Berrington, found customers at prices ranging from £21, £10 10s., £9 9s., £8 8s., and under, all that were entered being sold. Mr. Thornton, of Pitchford, offered eleven for sale, and all met with customers. A shearing let for £21, and one sold for 22 guineas, one for 21, one for 20, one for 18, and three for 10 guineas each. None sold under 7 guineas. Mr. Henry Smith, Sutton Maddock, let a two-shear ram (highly commended at Bury) for 20 guineas; and he met with purchasers for thirteen others at 15, 11, 10, 9, and 8 guineas, and under, none selling under 6 guineas. Mr. Thomas Horton, Harnage Grange, entered seven shearlings, and all sold, the

prices being 13, 8, 6½, 6, and 5 guineas, giving, on the whole, an average of about 7 guineas. Mr. H. J. Sheldon, Brailes House, Warwickshire, sold six, being all he offered. The average price was about 7½ guineas. Mr. Horley, The Fosse, Warwickshire, entered six, and sold all. The average price was about 6½ guineas. Mr. C. R. Keeling, Yew Tree Farm, entered six, and the prices were on the average about the same as Mr. Sheldon. One of Mr. Griffith's shearlings sold for £21, and one for £15 15s.; two others were sold at lower prices. Mr. Jones, of the Kilne Green, Whitechurch, sold one ram for £21, and five others at a smaller figure. The

Hon. E. Kenyon, of Maesfen, entered eight for sale, and seven of them were purchased; the highest figures were 17 and 18 guineas, and the average nearly 12 guineas per head. Mr. J. Crane, Calcott, sold three at 5, 4½, and 4 guineas. Mr. John Maddox, Harley, seven, one at 14, one at 10, three at 8, and two at 6 guineas, giving an average of nearly 9 guineas. Among the other breeders who offered and sold were Lord Willoughby de Broke, Mr. A. Burd, Burcott; Mr. Wall, Baschurch; Mr. Barber, Harlescott; Mr. Preece, Cressage; Mr. Fowler, Acton Reynold; Mr. G. Crane, Benthall; Mr. Calcott, Betton; and Mr. Andrews, of Newbold.

## REVIEW OF THE CORN TRADE DURING THE PAST MONTH.

The welcome rains at the close of August, though sufficient to renovate the grass-lands and open the soil for a time, not being sustained, the effects of a new drought began soon to be felt. The ponds and streams were un replenished; and the stagnant residues in many instances became hurtful to the cattle that were forced to use them. But on the 18th there were heavy thunder-showers, highly beneficial, though a much heavier fall is still needed. The interval of dry weather was, however, very useful to Scotch farmers for the completion of their harvest, which had been previously caught in the wet. English supplies of the new wheat have been pretty well kept up; but prices, with small fluctuations, have remained much as they were, with, however, some gain on fine white samples. The crop, on being thrashed, turns out quite as favourable as expected. Statistical returns give us 3,646,260 acres in wheat as the growth of Great Britain, commissioners having made their estimate as 4½ qrs. per acre for the average yield, which, had it not been for the superiority of the flour, we should have considered rather high. We will take it for granted as a fair calculation. This will give us, as the produce of Great Britain, 15,496,605 qrs. of wheat. But, the cereal year having finished with exhausted stocks, and the new period having commenced about one month sooner than usual, there has been an extraordinary demand on the new crop, which will be very much like reducing the gross quantity to fourteen million quarters. This, with all our boasted abundance, will not free us from the necessity of large imports, as population keeps increasing at a rapid rate. But our present prices are not very alluring, nor is the general yield abroad so decidedly superior as our own; and as last year's produce of good quality was everywhere used up, there can be no immediate apprehension of large arrivals of new foreign corn. We must wait for some time for receipts from the South of Russia; and even America seems doubtful, though generally this year has been considered a plentiful one. We have had occasional depressions at New York; but these have as often been followed by recoveries, and no considerable shipments have yet been made, nor do they seem likely till the coming spring. All spring corn being comparatively scarce and dear, will certainly go to help wheat prices; and how the cattle are to be got through next winter, with so few roots and so

little hay and fodder, seems of very difficult solution, unless graziers resort to corn. Why, then, should farmers force off their only paying crop, and so reduce its value. The following quotations were recently returned at the several places named: White wheat at Paris was worth 59s., red 56s. Wheat in Belgium ranged from 54s. to 57s., new white at Rotterdam 61s., at Maestricht average quality 55s., red at Hamburg 57s., at Berlin 54s. to 55s., at Cologne 55s., the best high-mixed at Dantzic 57s. In Hungary, where they do not thrash freely till the end of September, 41s. for Banat red. In the Danubian Principalities 45s. per qr. was asked for their inferior qualities, Gbirka at Odessa 42s. 6d., mixed at Alexandria 35s. to 37s. (used mostly for distillation, spring wheat at New York 50s. to 52s. per 480lbs.

The first Monday of our present cereal month opened on very moderate supplies of wheat, both English and foreign. There was but a small show of samples during the morning on the Essex and Kentish stands, which generally induced factors to ask enhanced rates; but only an occasional extra shilling was eventually paid, and sales went off less readily than expected. Spring American and fine Petersburg also brought more money; but other qualities of foreign were without change of value, and only a retail sale. Cargoes afloat found a fair demand, at an improvement of 6d. to 1s. per qr. The country trade this week oscillated generally between an advance or a decline of 1s. per qr., though in a few instances the difference was greater. Liverpool was 2d. per cental dearer on Tuesday, but on the second market became dull, and several of Saturday's advices noted a decline of 1s. to 2s. per qr. Edinburgh and Glasgow were up 1s. Dublin found a good trade in Irish qualities, and foreign were 1s. per qr. dearer.

The second Monday, with only a moderate return of English wheat, was extremely short in foreign arrivals. The influence of Saturday's country advices was felt in London, notwithstanding the small supplies for the week, and the limited number of samples on the Essex and Kentish stands, inasmuch that a decline of 1s. to 2s. was necessary to submit to before any way could be made. With this concession, however, a larger business was done than in the preceding week. Holders of foreign, seeing the state of trade, were little disposed to press sales; but some, to do business, accepted 1s. per qr. less

money. The floating trade, though nominally unchanged as to prices, found much fewer buyers. The London advices had a depressing influence this week all over the country, though some few markets resisted any decline beyond 1s. per qr. More accepted 1s. to 2s. less money; and a few, apparently almost panic-stricken, reduced their rates 3s. per qr.; but generally 2s. less were accepted, and there was a large amount of business transacted. Edinburgh was down 1s. to 2s., and Glasgow 1s. per qr. Dublin was dull for native wheat, and down 1s. per brl. for foreign.

On the third Monday there was a fair English supply, and a good increase on the foreign arrivals. The show of samples from the near counties was only limited; but there was a larger portion of red than previously appeared. This quality therefore was a heavier sale, and finally went off at 1s. per qr. less money, though fine white was in good demand and fully as dear. As regarded foreign American sorts these were fully as dear, being scarce; but of other qualities the sale was exceedingly slow, and only practicable at 1s. per qr. decline. With few cargoes off the coast being on sale, prices were unaltered. There was considerable variety in the several country advices, and in the earlier part of the week prices were pretty well balanced between a fall of 1s. to 2s. and a rise to the same extent; but the later markets increased in firmness, till most of Saturday's returns came to 1s. to 2s. per qr. dearer. Edinburgh was 1s. to 1s. 6d. per qr. lower for wheat. Glasgow was reduced 1s. to 2s. per qr. on new. Dublin was unaltered for native produce, with a good inquiry; but foreign was quiet.

On the fourth Monday there was a rather better English supply, and the foreign arrivals were still further increased. The show of samples during the morning on the Essex and Kentish stands was, however, lessened, and there was a decidedly improved feeling in the trade, helped by the later country reports. Sales, both of white and red qualities, were pretty freely made, at fully 1s. per qr. improvement, and in some instances for choice lots still more money was paid; but town millers having this morning decided on reducing their top price from 54s. to 50s., it was against their interest to encourage the movement, and business, for the want of country buyers, went off rather calm. There was a general firmness in foreign, and some sorts brought 1s. per qr. more money; but it was in retail. The floating trade was quiet, at unaltered prices. The market at Liverpool on the following day was rather dearer. On the 28th of September the wheat trade was dull.

The imports into London for four weeks were as follows, viz., 37,985 qrs. English, 57,918 qrs. foreign, against 28,272 qrs. English, 164,824 qrs. foreign, for the same period in 1867. The London exports in the same time were 722 qrs. wheat, 75 cwt. flour. The imports into the kingdom for four weeks, ending September 12th, were 1,876,293 cwt. wheat, 147,952 cwt. flour. The general averages commenced at 57s. 1d. and closed at 55s. 5d. Those of London commenced at 58s. 4d. and closed at 57s. 11d.

The flour trade for four weeks has been in calm

and tending downwards. Large supplies from the country have regularly been forwarded to London, notwithstanding the alleged want of profit to manufacturers, and a decline of about 2s. in Norfolk has taken place. French having also cheapened, notwithstanding the forced rise in the Six Marks at Paris. White fine American being exhausted, have been inquired for, and the shipments lately noted at New York are eagerly looked for. Town millers on the fourth Monday reduced their top price from 54s. to 50s. per sack on the same day that a rise of 1s. per qr. was noted in English wheat; but the wisdom of first-class millers has generally been exhibited by contraries. The imports into London for four weeks were as follows: Country sorts 82,241 sacks, foreign 6,024 sacks 3,464 barrels, against 61,730 sacks English, 20,062 sacks 14,608 brls. foreign in 1867. With moderate arrivals of maize, this grain has been in better demand, at an advance of 1s. per qr. The supplies in four weeks were 23,002 qrs., against 36,219 qrs. in 1867. The advance in beans, peas, and grinding barley seem likely to keep this grain at fully present rates, it being the cheapest feeding stuff to be procured.

The supplies of malting barley have continued very scanty, and prices have been gradually tending upwards till 48s. has become a common price for fine, and anything extra would bring 2s. and even 3s. more. Middling sorts of foreign have risen 1s. but finished with less demand; low grinding, which at the commencement were dull, have gained in value 1s. per qr., being worth fully 29s. to 31s. per qr. The imports into London for four weeks were 5,326 qrs. British, 27,025 qrs. foreign, against 2,062 qrs. British, 21,065 qrs. foreign in 1867.

The malt trade has been quiet through the month but rather tending upward, that newly-made finding increased favour.

The supplies of English beans have hitherto been short, but the foreign arrivals have increased. The trade though limited from the high range of prices has been firm and tending upward, except for Egyptian qualities. It depends on foreign imports whether we shall be dearer, our own crop being decidedly short, though dry and of fair quality. The imports in four weeks were 1,858 qrs. English 10,844 qrs. foreign, against 1,223 qrs. English, 8,385 qrs. foreign in 1867.

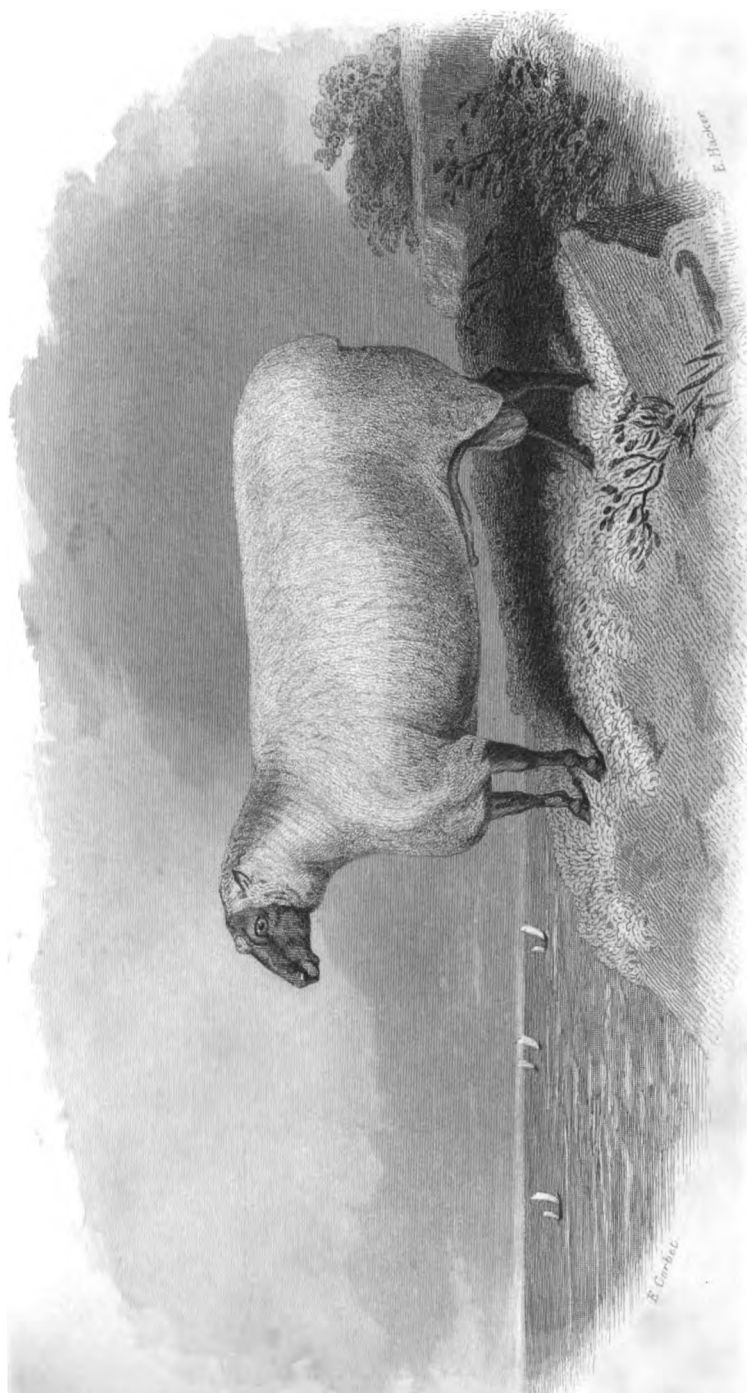
As regards hog peas the very small supplies of English growth have fully kept up their prices, and the falling off of foreign arrivals of white have raised the value of boilers 2s. per qr., fine English being worth 48s. to 50s. and foreign 45s. to 47s. per qr. The imports into London for four weeks were 1,681 qrs. English, 4,767 qrs. foreign, against 795 qrs. English exclusively in 1867.

The oat trade, notwithstanding the liberal foreign supplies, has gained fully 1s. per qr. during the month on Russian qualities: these previously were unduly depressed in comparison with Swedes and other Baltic sorts. On the third Monday there was a dulness and slight decline, but the fourth brought prices to their former level; say 25s. 6d. for Russian, weighing 36 lbs. per bushel. Extra qualities have been very dear and beyond quotable rates, new English of great weight being worth









# *The Southdown Ram.*

*By the Rev. John Lubbock, F.R.S., F.L.S., F.G.S., F.Z.S., F.R.C.E., F.R.M.S., F.R.I.C., F.R.A.S., F.R.C.S., F.R.C.O., F.R.C.P., F.R.C.O.S., F.R.C.O.D., F.R.C.O.E., F.R.C.O.F., F.R.C.O.G., F.R.C.O.I., F.R.C.O.L., F.R.C.O.M., F.R.C.O.N., F.R.C.O.P., F.R.C.O.Q., F.R.C.O.R., F.R.C.O.S., F.R.C.O.T., F.R.C.O.U., F.R.C.O.V., F.R.C.O.W., F.R.C.O.X., F.R.C.O.Y., F.R.C.O.Z., F.R.C.O.A., F.R.C.O.B., F.R.C.O.C., F.R.C.O.D., F.R.C.O.E., F.R.C.O.F., F.R.C.O.G., F.R.C.O.H., F.R.C.O.I., F.R.C.O.J., F.R.C.O.K., F.R.C.O.L., F.R.C.O.M., F.R.C.O.N., F.R.C.O.P., F.R.C.O.Q., F.R.C.O.R., F.R.C.O.S., F.R.C.O.T., F.R.C.O.U., F.R.C.O.V., F.R.C.O.W., F.R.C.O.X., F.R.C.O.Y., F.R.C.O.Z.*

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## PLATE III.

### A "ROYAL" SOUTHDOWN.

THE PROPERTY OF MR. WILLIAM RIGDEN, HOVE, BRIGHTON.

"The sensation" of the meeting was over the Southdowns, which the judges took late in the day, so that what with the heat and the amount of competition, this trio looked to have had quite enough of it by the time they were through. Still they did not suffer their work to beat them; for never were awards more heartily approved. Nevertheless, these went in comparatively a new direction to that which has been the order of things of late. Although, to use his own words, Lord Walsingham declined to run for the first heat over his own course in Norfolk, he was now beaten, and easily beaten, in both classes of rams; and the happy union of size with blood-like character was hit by Mr. Rigden whose shearling is as clever a sheep of his sort as has been out for many a long day. He has a good well-coloured head, a muscular neck, around, springing barrel, and a famous hind-quarter, being beautifully let down to his hock. Then, his touch is firm, although for wool and flesh the highly-commended sheep from Hove is as good or better than the winner. The judges, however, declared that they had no difficulty in finding their first sheep in either class, and but for one deficiency they would have recorded the best old ram as about the best they had ever met with. Of fine size, with a beautiful back and loin, and of admirable quality, this sheep has absolutely no dock, although otherwise so good to meet or follow. He was the prize shearling last year at the Brighton meeting of the new Southern Counties Association, although with Mr. Rigden's other sheep strangely overlooked at

Bury St. Edmunds. Both the shearling and two-shear winner are by the Babraham ram bought by Sir Thomas Lennard for 170 gs., and subsequently let to Mr. Rigden, so that the long price has, after all, been warranted.

The above is from our own report of the Leicester meeting of the Royal Agricultural Society; and in the official report, as given in the Journal a few months afterwards, the Judges thus spoke to the same classes:

"The aristocratic Southdowns were as well represented as usual, there being 56 entries, viz., 28 shearling rams, 19 rams of any age, and 9 pens of shearling ewes. In the shearling rams, Mr. Ryder exhibited two very superior sheep, one of which wrested the laurels from the Merton flock for the first time for some years; and Mr. Ryder also took first prize for the aged rams, with as perfect a specimen of a Southdown ram as has been exhibited at the Royal or any other shows for many years, the ram's only fault being that he was docked too short, or rather that his tail was too small, but this was not of much importance when every point was marked 'excellent.'" Ryder of course should be Rigden; but such is fame!

Our portrait is of the two-shear ram by Young Elegance, dam by a son of Salisbury. At Mr. Rigden's gathering in August this ram was let to Lord Radnor for 56 gs., and the best shearling at Leicester to Lord Walsingham for 60 gs. This sheep is also by Young Elegance, and they are both full of Babraham blood.

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## PLATE IV.

### THE OYSTER BEDS ON HAYLING ISLAND.

The following facts are from a pamphlet published by The Hayling Oyster Company, Limited: Oysters spawn from May to September, according to their nature and the locality, in the third year of their growth. The number of germs or ova brought forth by a mature oyster exceeds one million. The spawn, when first ejected, is, in the language of the

dredgers, "floatsome," and requires some prominent object to which to attach itself, such as shells and stones, which, under these circumstances, are termed "cultch." In this state it is called "spat," 25,000 of which, as nearly as can be estimated, go to the bushel. Spat in the second year is denominated "brood," of which from 4,800 to 6,400 make

a bushel. In the following year, brood becomes "ware," from 1,800 to 2,400 to the bushel; and the fourth year "oysters," from 1,200 to 1,400 per bushel. The food of the oyster is supposed to consist of minute infusorial animals, with which sea-water abounds. When kept in an aquarium, the oyster may be observed to lie with its shells slightly apart, and by means of the ciliary organs of its "beard," or branchial fringe, to create a continuous current of water, which thus brings within its reach the nutritive particle of which it stands in need, as well as to pass excrementitious matter like other molluscous animals. It has long been known that the oyster is greatly improved in edible qualities by being transplanted from situations in the open sea to places where an abundant supply of fresh-water is discharged. In the London market oysters are divided into two great classes—"natives" and "commons." Native oysters are those bred in the waters of the Thames estuary and the creeks of its affluents, both of the Kent and Essex sides. The superiority of the native oyster consists in the relatively large size of the fish compared with that of the shell, its remarkable succulence, delicate flavour, and compact shape, as well as the hardness and brilliancy of its shell. The price at which natives sell is accordingly very high in comparison with that of other kinds. By the term "commons" are known all other oysters, which are, however, distinguished from each other by the name of the locality from which they are taken, such as Channel oysters, Jersey oysters, and West Country oysters.

The oyster beds are of two kinds as regards the quality of their produce—namely, beds of common and beds of native oysters. Of two kinds as respects their proprietorship—namely, public beds and private beds. Of two kinds as to their origin and system of management—namely, natural and artificial. It is at present impossible to say to what cause, or combination of causes, is to be ascribed the great superiority of natives over all other oysters. The most remarkable circumstance connected with the native beds is, that they are all situated on the "London Clay," or geological formations of similar character. Many of the best-known beds of native oysters are, to a very great extent, factitious. They possess no certain power of reproduction, and would soon become exhausted, unless supplied with brood from other beds better situated for the retention of spawn and the production of spat. Of this kind are the celebrated Whitstable oyster beds, where a good fall of spat is a mere accident, which, however, sometimes puts as much as £30,000 into the pockets of the Whitstable Oyster Company in one year, by rendering the purchase of brood unnecessary. No artificial contrivances of any kind are in use on those beds for saving the spawn, which is left to settle by chance on the cultch of the beds, or on the adjoining foreshore, or else to be drifted off to sea and lost. Private oyster beds are those which are in the exclusive possession of individuals or companies, and are marked out by buoys or other boundaries. All other oyster beds are public property, and open to all. Natural oyster beds, properly so called, are for the most part, beds of common oysters, and

generally public property. They are always situated beyond low-water mark, and are seldom covered with less than three feet of water at low tide. Artificial oyster beds, truly so called, are those in which reproduction is secured by artificial means. With the single exception of the oyster beds of the Lake of Fusaro, near Naples, which had their origin in Roman times, they are of modern creation, having been invented by Professor Coste, and worked out by him on the French coast. Beds of this description are formed on the foreshores, and not below low water. The object of placing them on ebb-dry ground is, to facilitate the construction and care of the contrivances which are required for retaining and fixing the spawn, as well as the "working" of the oysters on the beds. Working is an operation by which oysters are greatly improved. It consists in detaching the brood from the cultch, separating young oysters when joined together, destroying star-fish, dog-whelks and other vermin, as well as in removing, by stirring it up, the ooze or "sludge," which is liable to settle on the beds and smother the oysters. On beds situated below low-water mark, working has to be done in boats, by dredging, and requires as many as eight men per acre. Beds on the foreshores are worked by men on foot and armed with rakes, two of whom suffice to keep in order one acre of artificial oyster beds. Working by dredge from boats, besides being less certainly efficacious than working an ebb-dry ground, owing to the beds being hidden from view, has the additional disadvantage of being destructive to the tender spat and brood, which are readily injured by the heavy dredge in its passage along the bottom. Frost in winter, and the sun's rays in summer, both of which are destructive to the oysters left dry by the tide, are prevented injuring the stock on artificial beds, by arranging the surface of the ground in such a way as to retain about a foot of water at ebb-tide. The experience of the French in this respect is borne out by that of the proprietors of some of the foreshores in the Thames, where spat falls naturally from time to time in uncertain quantities. They find that such spat can always be preserved and reared, even in the most severe winters, on those portions of their grounds where the water, when at its lowest, lies a foot deep, or even less. The average rate of reproduction obtained in France by artificial breeding arrangements is about fourteen-fold, which, after paying expenses, leaves a clear profit of 1,000 per cent. Though affording a very handsome return, this still exhibits an enormous amount of waste, which further improvements in the means of arresting and fixing the spawn will no doubt greatly lessen, and to that extent augment the profits to be derived from artificial oyster culture. The results at Hayling have been still more satisfactory. Upon an acre of prepared ground, with eighty large hurdles fixed in the pond, a spat valued at £2,000 was secured the first year. These young oysters, without loss, passed through the severe winter, and went on growing in perfect health, thus proving the eligibility of Hayling as a site for both breeding and wintering.

Mr. Lobb, writing in the summer of 1867, re-

ports that the South of England Oyster Company had succeeded in securing their second season's fall of spat. During the winter and spring they prepared thirty-eight acres for spat, two-beds of respectively eighteen and twelve acres at Langston, and eight acres at the Salterns, where the spat was previously obtained. On the 1st of July, Bed B, eighteen acres in extent, in which 8,000 hurdles had been laid, was found to be full of spat; every hurdle examined was found to be abundantly covered with young oysters, almost microscopic in their size. Bed B is the most westerly bed, and was the last prepared. Bed A, only separated from it by a narrow embankment, contained no fixed spat, although the water was full of floating spawn, as is also the case of the Salterns.

Mr. Hart, the manager, values each of the hurdles when covered with spat at £5; but Captain Russell, manager of the Herne Bay Oyster Company, offered four shillings a hundred for all spat or brood that could be supplied. Now there are about 250 young oysters to the square inch on all these hurdles; and each hurdle is 8 feet long by 3 feet broad, so some idea may be gathered of the number of oysters on each hurdle.

In the reign of Henry II., says Mr. Lobb, the Emsworth Fishery was valued at eight shillings and eight pence per annum to the royal treasury, and the harbour was from a very early date celebrated for the quality of its oysters, which are larger than the Thames natives, but considerably smaller than the Channel oysters. The local fishermen have ever looked upon strangers dredging in the harbours with jealousy, and have done all in their power to prevent it, although they themselves are not, as a rule, so provident as the deep-sea fishermen, who save their earnings to purchase vessels of larger tonnage and improved build. The harbour fishermen are satisfied to go on in the old routine, and seldom very much improve their position. Formerly the dredgers returned to the sea the young oyster and spat, reserving only the marketable oysters, but after a time they carried away with them all they removed with the dredge, retaining the small oysters to deposit in their own layings. The local men now believed that they were ruined, as the natural beds in the channels were rapidly being rendered barren, and as the demand for oyster beds increased, the lords of manors granted portions of mudlands to persons who cleared them, converting them into layings, and, according to their statute, planted sticks upon their boundaries, so that strangers should not dredge on their private beds. In these beds not only native oysters but Channel oysters were placed for fattening, for sale in the London market. This new system, however, did not suit the Emsworth fishermen who, enraged at seeing the success of the new system and the destruction of the natural beds, determined to seize the oysters and destroy the artificial beds. They, therefore, combined amongst themselves, and commenced by attacking the oyster beds belonging to the Messrs. Russel, in Crastick Lake; this resulted in fighting, and at the assizes the fishermen at length discovered that they were not allowed to rob other people with impunity. The large dredgers still continue to remove all they

can get, and according to some authorities, the dredging so disturbs and scarifies the bottom and sides of the channels that the multiplication of the oysters is much increased, the spat is moved and distributed, and every year the number obtained increases. The artificial oyster beds contribute to this result, as the spat travels down the channels with the ebb-tide, and by this means increase the area covered by spat; every year we find the number of boats employed in this trade increase. The trade was formerly confined to the winter months, but now it is carried almost through the year. Oysters are obtained from all quarters, and laid in the beds for fattening, and the demand being so large and regular the trade is very remunerative. The best interest of the locality is to encourage this industry, which brings capital and labour into the neighbourhood, and must be of the utmost advantage to all concerned.

The proprietors of oyster-layings in the neighbourhood of Hayling are accustomed to purchase oysters of the dredgers who enter the harbours from time to time during the season, and, laying them down in small beds made in the shallow channels and foreshores of the island, small banks of mud of about a foot in height are raised either across the channels, or of an oblong shape along the foreshores, so that at low tide the oysters are covered by about a foot of water. By this means the poor oysters brought in from the channels are found rapidly to "fish," that is fatten, and the difference between the buying and selling prices (the oysters having laid in the beds some months) is found to average some one hundred per cent. gross profit. On the west side of the island there were several large layings belonging to Mr. Crouch, now removed, the beds now being enclosed by the railway. On the east side of the island, in my lord's pond in Gutnor, there are some twenty or thirty small beds belonging to different owners, licensed by the lord of the manor and the Admiralty, in which oysters are fattened for the London market. The native oysters fattened in these ponds are the long-celebrated Emsworth natives, considered by some to be superior to the native oysters from the estuary of the Thames, from their more saline taste.

The Havant and Hayling Railway crosses the mudlands at the north of the island, and running along almost parallel to the west coast of the island, will, when completed, enclose nearly 900 acres of mudland. The railway embankment is joined to the island at the north by a short spur from the conformation of the land, and a short embankment of about 90 yards would enclose an area of about 7 acres. This embankment was made, and another bank is now in progress of formation, enclosing 27 acres. These will be made into breeding and fattening beds. This bank is of the same height as the railway, having a walk at the top 8 feet broad, and having a slope on each side of 1 foot in 3—faced on the seaward side with chalk pitching, affording a most efficient sea wall. Thus two reservoirs are formed enclosing 45 acres completely under control. Any depth of water thought advisable, from 1 to 8 feet, can be retained; also by means of the trunks a current can always be kept

flowing from one to the other, from the external water to the reservoirs at high-tide, from the reservoirs to the mudlands at low-tide.

Mr. Francis Francis, one of the commissioners appointed to inquire into the Oyster Fisheries, thus writes within the last month of the progress made at Hayling: I visited the works lately, and was shown over them by Mr. Hart, who gave me every opportunity of seeing what there was to be seen. Of course, the matter I was most interested in was to inspect the oysters which had been bred and reared on the spot, and I confess that I was both surprised and delighted at what I saw; not so much at the quantity—although they have a very fair stock in hand, already amounting to something like five millions—but at the way in which the spat of only last year had thriven and increased in size. There were quantities of oysters only fourteen months old as large as I have seen them at two years old in the south of France, and this speaks volumes for the growing and rearing qualities of the ground. The system adopted is by picking the oysters from the hurdles, which are thickly covered with them, and by spreading them pretty thickly (about one to every 5in. or 6in. square) in claires dug out of the mud at the side of the breeding ponds, and which are shingled at the bottom and banked up so as always to keep about a foot or so of water over the fish; for it has been found that merely to place them on the open flats, so that they are dry at low tide, does not suit them at all. Mr. Hart had tried the experiment thus: he placed some brood on the bare grass banks, on a marked space; he also placed some in a hole on the grass banks which had been caused by the grounding of a barge. The only difference in these two localities was, that one contained water at low tide, and the other was bare. In the hollow where the water was, the fish grew as well as they did on the claires, merely taking the green colour of the grass they lay amongst. On the flats, where the oysters were left by the tide, the brood had not grown or increased at all; it was of the same size that it was when laid down. The temporary exposure clearly very strongly affects the growth of the animal, and this is a fact worth establishing and knowing. It is one more landmark in the natural history of the oyster, in respect to which no one has done so much service as Mr. Hart. The breeding ponds, besides the old salterns where they got the fish spat, now consist of a pond of 12 acres, another of 18 acres, and a third, not quite completed, or 28 acres. These, with the claires, &c., make the most comprehensive establishment for oyster culture in the world. It is far superior to anything of the kind either at Arcachon or the Ile de Rhé; and a great deal of work has been done. Mr. Hart's view is, that the larger the space of water in which the oysters are *confined*, both in a local and obstetrical sense, the better. There is not, he thinks, motion, change, or aëration enough of the water in a small pond to give a reasonable chance of success. The evaporation, too, becomes great, and the water too dense and too salt; and the more the breeding plan is assimilated to nature, the better chance of success it gives. A wide space is more natural than a narrow one, and he

therefore hopes great things from the new 28-acre pond now in progress. The great want, however, which is felt is in obtaining laying ground, on which to place the oysters for the purpose of growing. A great loss must be felt both by the company and the public, if they are compelled by lack of space (as they are) to sell large quantities of the brood while it is yet small. Naturally, at that tender age the brood does not move well to long distances, and the mere act of shifting and carriage destroys a large percentage of the oysters. If there were plenty of laying ground on the spot, this, of course, would be avoided. The oysters would grow to a safe size before there was a need for their removal. Mr. Hart stated that to supply this necessity, which became a very onerous one as their stock of brood increased in size and numbers, they had intended to apply to Government for a portion of the Channel beyond the mud flats; and, as this is at present almost devoid of oysters, or of anything to render it of any value to anyone else, he hoped they would be able to obtain it—the more so that the establishment of this fishery here has been a very great boon to the neighbourhood, as the company employ between forty and fifty men at one pound a week each, and the thousands of pounds they have spent, and the industry they have set up in this spot, are no light advantage to the place. Yet, in the teeth of all this, there is of course the usual vulgar, stupid, jealous, unreasoning prejudice to endure, which always has awaited, and always will await, anything new. The first announcement of the plan was received with a shout of derision, of course, on the part of those who had always followed the good old plan of reaping everything, and sowing nothing. As the works progressed argument was clear that it mightn't, couldn't and wouldn't be. "How should you get a spat inside, when we ha'n't got one outside?" Of course it might have been answered, "Because we have got oysters inside, and matters suitable to catch the spat, which you have not outside;" but Mr. Hart simply went on with his own business, and did not trouble himself with their opinions. And now he is successful, and they can neither laugh at it nor argue against it. The tune is changed to, "You be a takin' the bred out of our mouths, and will do this, that, and the other." Fifty of these men are employed at full wages all the year round upon a purely private farm, which in no wise touches them, save to benefit them, and this is taking the bread out of their mouths! and the application for a bit of waste ground, off which nothing is got, and which they never go upon, will no doubt be looked on as a capital offence at the least. It is hard work to make headway amongst such people; but, if we are ever to have oysters again, headway must be made, and it is to such enterprises as this we must look for our oysters. Emsworth harbour, formerly a great place of production, has been, like all the rest, dredged to death; and now a few persons have got up what they call a dredgers' company, to which they are to supply the money, I hear. How long it will be dredgers' company, or how long it will be before capital overrides labour, I am very curious to see. However, if the dredgers obtain their wish on this



side of the island, they will get as much and more than they are entitled to from the public. The point to settle in such undertakings as these is to discover what substances make the best and cheapest collectors, and at the same time give the best results when the oysters require to be separated from them. The French use tiles, and no doubt tiles do secure more oysters than any other substance; but the great difficulty is to get the oysters off them without destroying a large percentage in doing so. Added to this, tiles are very expensive when used in large numbers, and the labour of getting the oysters off when they run to millions is a matter of great consideration, for it is a work of time and care. These little oysters may not be roughly handled, lest you kill the fish on the one hand and cut your fingers on the other, their edges being as sharp as razors. One man last winter lost a finger from a cut; so that [it is not always the collector which will attract the most oysters that pays the best in the long run. On the hurdles, the

oysters attached to the smallest twigs are found to be the easiest to deal with, and are the least likely to grow out of shape or to die in separation. The shape is soon recovered again when the oyster has been laid in the claire for a few months, though, as it is an effort on the part of the fish, as little deformity of the shell as possible is advisable. Finding that these small twigs answered best, Mr. Hart last season bethought him of trying furze bushes as collectors, as there is an abundance of furze on the spot, and it answered very tolerably indeed, taking a fair proportion of the spat. This form of collection has the merit of cheapness, and the oysters can easily be separated and detached. Just at present the men are busy picking the last year's hurdles, a large order for a million and a-half of brood having come in from a French company; and, so far, I think, it may be considered that the company has been even more successful than was at first expected.

## THE CLOVER PLANT.

BY CUTHBERT W. JOHNSON, F.R.S.

The failure of the clover plant on so many of our soils has long been deemed one of the most unaccountable of our agricultural difficulties. It is one, too, which has only, perhaps, occurred to a great extent during the present century. When the English farmers first began to cultivate red clover, it was commonly successfully grown every fourth or fifth year. The commencement of its cultivation in our island was hardly earlier than the middle of the seventeenth century. Old Worldge, who published his work on Agriculture in 1669, strongly urged the farmers of his day to cultivate clover. He observed (*Mystery of Husbandry*, p. 26): "It has this property, that after the growing of the clover grass for three or four years, it will so frame the earth that it will be very fit for corn again, which is a very great advantage, and then again for clover." And he adds, by way of encouragement to the farmers of the days of Charles II., "It is much sown and used in Flanders and in Holland, precedents to the whole world for good husbandry." Worldge was not the first English writer who had urged our farmers to cultivate clover. Twenty years before his time good honest Walter Blith in his "Survey of Husbandry," published in 1649, pleaded for its cultivation. By neither of these authors is reference made to any objection to the often-repeated growth of red clover. Worldge, we have seen, states that it was then grown repeatedly by merely intervening a single cereal crop. I can find nothing in the 44 volumes of Arthur Young's "Annals of Agriculture," which extend from 1790 to 1808, relating to what is now called the clover sickness, but in the first volume of the *Journal* of the Royal Agricultural Society, Mr. G. Turner, of Barton, in Devonshire, alludes to it, in 1840, as an established visitation. He deemed its origin to be (*Jour. Roy. Ag. Soc.*, vol. i., p. 502) "after 20 years' experience, when there was the best plant at harvest time, in nineteen cases out of twenty its failure is entirely owing to the stubble being fed bare after harvest, and the plant being so weakened thereby as to prevent its standing the wet and cold of the succeeding winter. I have so repeatedly

proved this on various soils that I have not a doubt on the subject; for in every instance where I have not fed it off in the autumn, that piece has been the admiration of every one the following spring." Other explanations of the difficulty of cultivating red clover have been, however, suggested, such as (1) that the clover had gradually deprived the soil of some essential constituent of the plant, which might be restored to the soil by artificial manures, just as the Cheshire farmers added (in crushed bones) phosphate of lime to their exhausted pastures, or the farmers of the eastern counties, siliceous dressings to their peat soils, or chalk to the lands devoid of carbonate of lime; or (2) it was suggested that red clover deposited in the soil excretory matters obnoxious to the growing plant; or (3) that certain exceedingly minute animalculi or fungi have in the course of time gradually established themselves in the soil, which are very fatal to the clover plant. Of these attempted explanations No. 1 appears to be the most probable of those we have enumerated; still, we may reasonably consider, as to suggestion No. 3, whether the clover sickness, and, indeed, many other diseases of both vegetable and animal life, may not be caused by the presence of organisms on the living subject far too minute to be detected by any means at present at our disposal. We have noticed the remedy for the clover failure assigned by Mr. Turner, of Barton. Whatever, however, may be the good results of not feeding upon the young clover, on the red sandstone soils of Devon, the same remark does not generally apply to those of other portions of the kingdom. It was in 1841 that a committee of the Yorkshire Agricultural Society directed their attention to this very important question. The result of their inquiries was given by the Rev. W. Thorp, of Wormesley, and from it and his own researches, he arrived at the conclusion, that it was the want of solidity in the soil which led to the loss of the young clover. Mr. Thorp remarked (*Jour. Roy. Ag. Soc.*, vol. iii., p. 326):

"Upon the magnesian limestone nearly one-half of the red clover sown fails (200 acres out of 450); upon

the chalk wolds of Yorkshire, owing to frequent failures, many farmers have given over sowing red clover, while the white clover is very often only half a crop; and upon the oolites and other light soils of the new red sandstone and of the coal district, red clover, owing to frequent losses of the crop, is only sown once every twelve years. An inquiry, therefore, into the general and extensive causes of the failure of this plant, and consequent loss to the farmer, cannot but be of advantage.

"In a paper read before the Yorkshire Agricultural Society last year the causes of failure, *at the time of sowing and during the summer months*, have already been pointed out, and it is concerning the failure of the clover-crop *after harvest* to which the following remarks will be more particularly directed. In this case the crop after harvest is always good, but dies away during the months of October, November, December, January, February, and March, the lands on which this occurs being denominated 'clover sick' from a supposition of the too frequent repetition of that crop.

"The committee of the Yorkshire Agricultural Society in the report of last year directly ascribe the failure to the *exhaustion of some food required by the clover*. They say, 'Mr. Thorp has collected a great mass of evidence to prove that on certain soils clover may be grown at short intervals. The committee, on the other hand, have shown that certain other soils will not grow it with advantage oftener than once in twelve years. These apparently contradictory facts may be reconciled on the supposition of the food of clover being exhausted.' Mr. Legard in the same report says: 'On the much controverted question of clover-sickness, my opinion is, that the soil is rendered unfit to produce successive crops of this plant, either by excretions given out by the roots, or by the exhaustion of certain constituents of the soil by the plant itself.'"

The ill-effect produced upon the clover plant by its own secretions was a very unsatisfactory theory adopted by Liebig. He told the German farmers (*Chem. Agri.* p. 157) that "In some neighbourhoods clover will not thrive till the sixth year, in others not till the twelfth; flax in the second or third year. All this depends on the chemical nature of the soil; for it has been found by experience that in those districts where the intervals at which the same plants can be cultivated with advantage are very long, the time cannot be shortened even by the use of the most powerful manures. The destruction of the peculiar excrements of one crop must have taken place before a new crop can be produced."

There is apparently this objection to this explanation of the disease—that for a long series of years the clover grew luxuriantly every fourth or fifth year on the very soils on which it now fails—so that the excretory matters of the plant did not *formerly prevent its growth*. The German agriculturists, however, rather incline to the conclusion to which Mr. Thorp arrived—viz., that the soil had become by long cultivation too much pulverized for the healthy growth of the plant. At the great meeting of the German landowners in 1841, Professor Schweizer observed (*Jour. Roy. Ag. Soc.*, vol. iii. p. 223):

"With respect to the repetition of red clover, we have had abundant experience in Saxony. Where the soil is neither too loose nor too close, is deep, so that the plough can go 8 inches down, and is also rather moist, clover is the most certain, and may be repeated most frequently, not only every six years, but, with high farming, even every four years. On an inferior soil we may be quite certain that clover will not do well every four years, as has been proved in the neighbourhood of Dresden, where the land is completely clover-sick. The chairman gave his opinion that a repetition of red clover after six years was

allowable everywhere; that in favourable soils five years might be a sufficient interval, but that to bring two crops of clover nearer together was always doubtful, and could only be regarded as an exception."

It was in 1849 that Messrs. Lawes and Gilbert commenced their examination of the subject. Their elaborate report (*ibid.*, vol. xxi., p. 178) contains many experiments upon the application of manures to clover-sick soils. They too did not much incline to favour the theory of the excrementitious matters of the plant being the cause of the disease. On this head they remark:

"There is evidence of various kinds to show that plants give out certain substances by their roots to the soil. It is not probable, however, that any mineral constituents which may be so rejected during the growth of one clover-crop, are prejudicial to the growth of a similar crop on the same land for a number of years to come. If the failure of the clover-plant, when repeated too soon upon the same land, be due at all to the excrementitious matters left by the former crop, it is much more probable that the injury is in some way connected with the organic matters which have been rejected. Unfortunately, we are not yet able, by the aid of chemistry, to distinguish those organic compounds of the soil which are convertible into the substance of the growing plant, and those which are not so. Nor do we know how far the excreted organic matters may be necessary complementary products in the formation of some of the essential constituents of the plant. Experience teaches us that when a crop of clover is eaten by sheep folded upon the land, animals dislike the growth which immediately succeeds. It might be inferred, therefore, that, in such a case, the plant had taken up from the soil certain matters which it had not finally elaborated. Whether these organic substances would, in process of time, be converted into living-plant matter, or whether they would wholly, or in part, be rejected as excrementitious organic compounds, to undergo in the soil certain chemical changes before being adapted for plant-food, we are not able to determine.

"In connexion with this question, of whether or not the failure of the clover-crop be due to the injurious influence of excrementitious organic matters, left by the last crop of the same kind, attention may be called to the fact, that in the case of the failure in our field experiments, two years of fallow, and one year of barley, intervened between the poor crop of clover in 1855, and the almost equally poor one in 1859. *A priori*, we should certainly be disposed to think, that any deleterious matters left in the soil by the clover-crop of 1855 would, under the circumstances in question, have undergone pretty complete decomposition during the three succeeding years. At the same time, it should be remembered that in 1852 the plant of clover suffered very much more where rape-cake, or salts of ammonia had been applied in 1849, than where mineral manures only had been employed."

One observation made at Rothamstead, appears to be much against the excrementitious theory; to give the words of the report—"How are we to account for the fact that whilst the clover-plant would not grow healthily in the experimental field, we have been able to cut fourteen crops from seed sown six years since in a garden only a few hundred yards distant?"

After a long series of experiments of rather an inconclusive nature, the practical conclusions to which they arrived from their experiments at Rothamstead were, that when land is not what is called "clover-sick," the crop of clover may frequently be increased by top dressings of manure containing potash and super-phosphate of lime; but that when land is "clover-sick," none of the ordinary manures, whether artificial or natural, can be relied upon to secure a crop.

These researches, we have seen, were instituted in consequence of the opinion that the clover-plant had gradually exhausted the soil of some essential constituent that might be restored to the land by an artificial dressing. It will be well, then, if we remind ourselves of the composition of the mineral portion of red clover grown upon two different soils, viz., on a siliceous, and on a clay soil. This was some time since ascertained by Professor Way (*Jour. Roy. Ag. Soc.*, vol. ix., p. 138). He found in 100 parts of two specimens of red-clover hay grown on clay and sandy soils :

	From a Siliceous Sand.	From a Clay Soil.
Water .....	13.97	12.20
Ash .....	6.77	7.12

In 100 parts of the Ash or mineral portion of these he found :—

	In that grown on	
	Sand.	Clay.
Silica .....	4.03	2.66
Phosphoric Acid .....	5.82	6.88
Sulphuric Acid .....	3.91	4.46
Carbonic Acid .....	12.92	20.94
Lime .....	35.02	35.76
Magnesia .....	11.92	10.53
Peroxide of Iron .....	0.98	0.95
Potash .....	18.44	11.32
Soda .....	2.79	—
Common Salt .....	4.13	0.58
Chloride of Potassium ...	—	5.93
Total.....	99.95	100.00

From the results of this analysis, we should naturally be led to the conclusion that a mixture of the salts of lime and of potash would probably be a useful dressing for the clover-plant, and in this we are supported by the fact that the sulphate of lime or gypsum is profitably employed as a top dressing for this crop in the United States, and in some districts of our own island; and that chalk (carbonate of lime) and lime have both been successfully employed for the same purpose in Yorkshire, and moreover by the fact that the super-phosphate of lime, and salts of potash, have produced (in the experiments of Lawes and Gilbert, and the recently-instituted trials on a variety of soils, by Professor Voelcker) promising results. The report the professor has made of these valuable examinations is marked by that caution in coming to a conclusion and love of truth which should ever attend our inquiries. He observes in his report to the council (*Jour. Roy. Ag. Soc.*, vol. iv., p. 334. N.S.), after referring to some of his formerly reported experiments :

"The same manuring agents as used in the three preceding years were again had recourse to in 1867, but applied in various parts of the country to land differing in character.

"I have now to report on the successful employment of potash in promoting the growth of clover, more especially as in many of my former field-trials, recorded in the Society's Journal, the artificial application of potash-manures did not yield results warranting the recommendation of such manures to the practical agriculturist; for even under conditions in which a beneficial effect was thereby produced, the results were not sufficiently marked to prove the economical advantage of laying out money in the purchase of potash-salts. During the past season, however, I have obtained for the first time results showing in a most decided manner the practical utility of employing potash-salts as a fertilising agent in producing a luxuriant growth of clover and cloverseeds.

"The experiments to which I would direct particular attention were tried under my superintendence by Mr. John Coleman, on Lord Wenlock's home farm, at Eserick

Park, near York. The experimental field was of a poor, sandy character, and the piece selected as nearly as possible even, as regards the quality of both the land and the grasses. The grass and cloverseeds were sown the preceding year with a barley crop. The following manures were applied on the 11th of April, and the first cutting was reaped on the 12th of June and the second on the 24th of August, each plot being carefully weighed on the same day as cut :

1. Nitrate of soda, at the rate of 4 cwt. per acre.
2. Sulphate of Ammonia " "
3. Mineral superphosphate " "
4. Common salt " "
5. No manure.
6. Muriate of potash " "
7. Sulphate of potash " "
8. Sulphate of lime " 1 ton per acre.
9. Mineral superphosphate and nitrate of soda, at the rate of 4 cwt. per acre each.
10. Mineral superphosphate and muriate of potash, at the rate of 4 cwt. per acre each.
11. No manure.

"No change was visible until about the 23rd of April, when plots No. 1 (nitrate of soda) and No. 9 (mineral superphosphate and nitrate of soda) could be distinctly distinguished from all the others by their darker green colour and grosser growth, which was apparent until the crops were cut.

"The nitrate of soda, however, encouraged the growth of the Italian rye-grass to such an extent that the clover was for the greater part quite smothered, and the clover so choked that when I saw the field afterwards, at the end of last October, hardly a single plant of clover was visible on the plots to which the nitrate was applied in spring. On the other hand, the clover which grew very luxuriantly on plots 6 and 7, dressed with muriate and sulphate of potash respectively, grew still more luxuriantly on plot 10, dressed with mineral superphosphate and muriate of potash. The clover and rye-grass on plot 10 were both long, strong, and of excellent quality; the clover especially being distinguished by luxuriant broad leaves and a dark green colour. On the whole, plot 10 yielded by far the best crop both as regards quality and quantity.

"The undressed plot yielded, in round numbers, 5½ tons of green food in the first cutting, and nearly 2 tons in the second. Muriate of potash, applied alone at the rate of 4 cwt. per acre, produced, in round numbers, 6½ tons of green cloverseeds in the first cutting and 8½ tons in the second, or both cuttings gave an increase of 2½ tons of superior quality; whilst mineral superphosphate and muriate of potash mixed together yielded 9 tons in the first and nearly 5 tons in the second cutting, thus producing altogether an increase of 6½ tons, or nearly double the amount of green cloverseeds grown on the unmanured plot. This large increase, it should be observed, was not produced at the expense of quality; for, as noticed already, the crop on plot 10 was by far the best in quality of all the 10 plots, and up to the present day the clover stands well here, whilst on most of the other plots it is either less luxuriant or has in a great measure disappeared.

"Nitrate of soda alone produced, in round numbers, 8½ tons in the first cutting and only 2 tons in the second.

"This result is particularly interesting, inasmuch as it shows that whilst this saline manure yielded a considerable increase in the first cutting, it left the land in a more exhausted condition than land which has not been dressed with this special manure: for the unmanured plot yielded 2½ tons in the second cutting, and that dressed with nitrate of soda only 2 tons.

"Nitrate of soda thus appears to force an early growth

of Italian rye-grass, for which it seems more suitable than for clover, and is more useful when an early cutting is required, and the farmer intends to grow a large bulk of green food for the use of cowkeepers, instead of a good quality of grass and cloverseeds for hay.

"On sandy soils in a poor condition nitrate of soda produces very coarse grass, the Italian rye-grass in the instance before us being little better than good oat-straw. On such soils nitrate of soda should not be used alone; for it has an unmistakable tendency to exhaust the land.

"Another interesting result to be found in these experiments was that mineral superphosphate applied by itself gave hardly any increase in either the first or the second cutting. This is all the more remarkable, because, in the same set of experiments tried in other parts of the country on soils not so light and sandy as that on Lord Wenlock's farm at Escrick, mineral superphosphate produced a marked increase in the clover crop, and because the addition of muriate of potash to superphosphate, in the Escrick experiments, very materially raised the increase of the crop over that produced by muriate of potash alone.

"We may learn from these experiments that a most useful fertilising agent like phosphate of lime may in some instances remain ineffective, because the soil to which the former has been applied is deficient in another equally essential plant-constituent, such as potash. The analysis of the soil from the experimental field, indeed, showed only traces of potash, and this no doubt is the reason why the artificial supply of muriate of potash, especially in

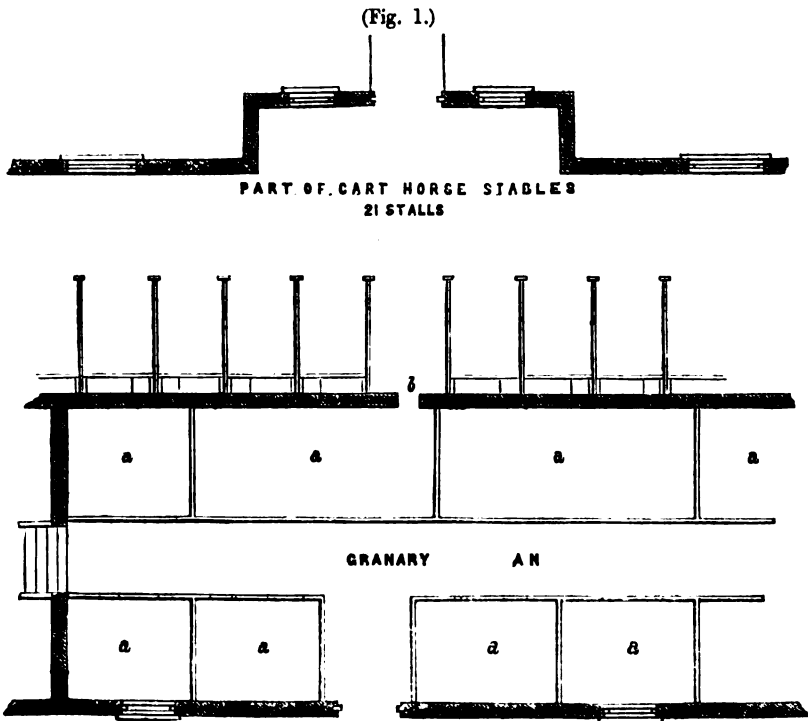
conjunction with superphosphate, was attended with so remarkably good an effect, and also that the latter alone did not produce a good result.

"Whilst I have to report favourably on the employment of a mixture of superphosphate and muriate of potash in the preceding experiments, and also in a similar experiment carried on last season in Berkshire, by Mr. Kimber, of Tubney Warren, Abingdon, I am bound to state that in other experiments made last season potash had little or no effect in raising the produce of the land. Indeed, my present experience leads me to think that whilst potash-salts in conjunction with phosphates are very useful in the case of certain poor sandy soils, their special application to land in a good agricultural condition, or to soils containing an appreciable quantity of clay, does not appear to yield results commensurate with the price at which potash-salts can at present be bought."

From the results of these researches we may, I think, be encouraged to persevere in our trials. It would be well, perhaps, if the carbonate of potash was tried with the muriate of potash and the superphosphate of lime, and also in much smaller quantities than those hitherto employed. The amount of these present in a ton of red clover hay is not very large. Way determined that a ton of this hay contained of potash about 23 lbs., and of muriate of potash about  $4\frac{1}{2}$  lbs.; of common salt about  $3\frac{1}{2}$  lbs.; and of soda rather more than 2 lbs. We might, I am inclined to think, use with good results a mixture of these in much smaller proportions of each than those hitherto applied.

### THE FARM BUILDINGS AT LUTON HOO.

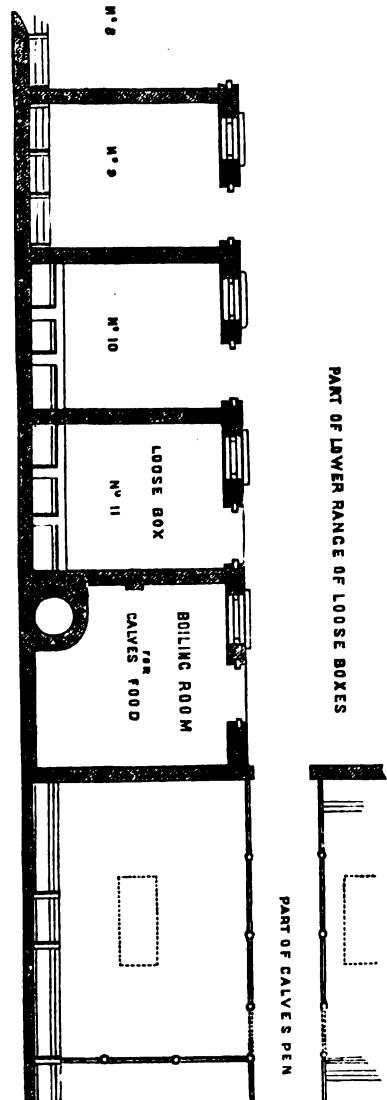
Referring to the block-plan, we purpose to give here a | give part of the principal cart-horse stable, in which there  
few enlarged drawings of the principal parts. In fig. 1 we | are twenty-one stalls. The drawing shows the central part,



with entrance to the granary *a a a* by the central door *b*. One feature in these stables, and, indeed, in all the apartments for the stock, is the ample space given to each animal, and more than that, and quite in its way as important, the ample space behind the animals, in which to carry on the work of cleaning. No mistake is more frequently made in the laying out of farm buildings, and none, we venture to say, is so prolific of loss of time in working, and we may also add in discomfort, if not disease to the animals, than making the spaces within the apartments too confined. We could point to more than one farm building which have been and are considered as models, in which the working spaces are so confined and straitened, that there is the greatest difficulty experienced in feeding and cleaning the animals. Ground is not so valuable as to necessitate the saving of space which may be necessitated in town districts, where ground is really at a high rate. But this is indeed beyond the question; for the question is not how much space can be saved? or what is the minimum which may be employed? but it is what space is necessary in order to secure not only full health to the animals as far as that can be saved to them by good sanitary arrangements, but also that necessary to carry on the working arrangements with the least possible expenditure of time and labour? For it should never be forgotten that the labour of a farmery is for ever going on, and for ever repeated; and the loss of time incurred in carrying on labour under adverse circumstances, although little in itself and at the time, becomes a very serious loss indeed when repeated day after day, and over a long series of months or perhaps years. This loss has been carefully avoided in the farm buildings at Luton Hoo; for not only is ample space allowed to carry on the work, but each apartment is so placed relatively to that connected with it, that there is no time lost in going unnecessarily from one part to another and returning. All the work therefore goes on progressively. The food stores are always near the place where the food is to be consumed, and the dung, &c., is carried off at at once to the places where it is to be stored up. There is also a foreman to each department, who is responsible for the work done in his department. These receive their orders direct from, and give in their reports direct to Mr. Ross. The result of the whole mode of working, and of the system of placing the various apartments in strict relation to each other, is the securing a high degree of regularity and its consequent order in the working of the farmery, and a great—possibly, the greatest—saving of time; and we all know that time is money no less in the pursuit of agriculture, than in that of other callings.

In fig. 2 we find an analysed drawing of the lower range of loose boxes (see block plan of farmery in No. 1. of the present series of papers); in fig. 3, part of the central cattle yards and sheds, with three store-rooms for food. To the left of this drawing, and at the bottom corner, part of the milk cow-house, with 15 stalls, is shown. The steam-pipe for supplying the engine (see block plan No. 1.), passes up between the boundary walls of the sheds. To the right of fig. 3 part of the bullock-fattening shed is seen. One feature in the construction of these bullock sheds is the ample ventilation secured—and that is—holding with what we believe to be a sound principle, while the object of sheds is shelter, such shelter should be in a condition as near as possible to the ordinary natural circumstances in which stock are when exposed, so far as the abundance and purity of the air which they breathe is concerned. Hence the visitor will find in the bullock sheds of this prize farmery a degree of ventilation which many would think extreme. But the fine condition in which the stock are maintained, and the rapidity with which they fatten, affords the best evidence

of the soundness of the principle of cattle shelter sheds. The feeding gangways *a a*, fig. 3 are raised, and communicate with the food store-rooms at the end. In fig. 4 we give enlarged plan of the sheep sheds or racks *a a a a*; the racks are run out to be cleaned and filled upon rails *b b*, laid on the roadway. The reader may compare this arrangement with that adopted on the Continent, and explained in No. IV. of the series of papers on the novelties of the Paris Exhibition.



We conclude by giving in fig. 5 (p. 380) an isometrical perspective block plan of the kennels connected with the Luton Hoo Estate. They are erected at a distance of some two miles from the farm buildings, at a place called Kinsman Green; and they are well worthy of a visit, not only from the admirable arrangement, as will be seen from the plan, but from the clever way in which the whole is constructed, and the fittings carried out. In

(Fig. 3.)

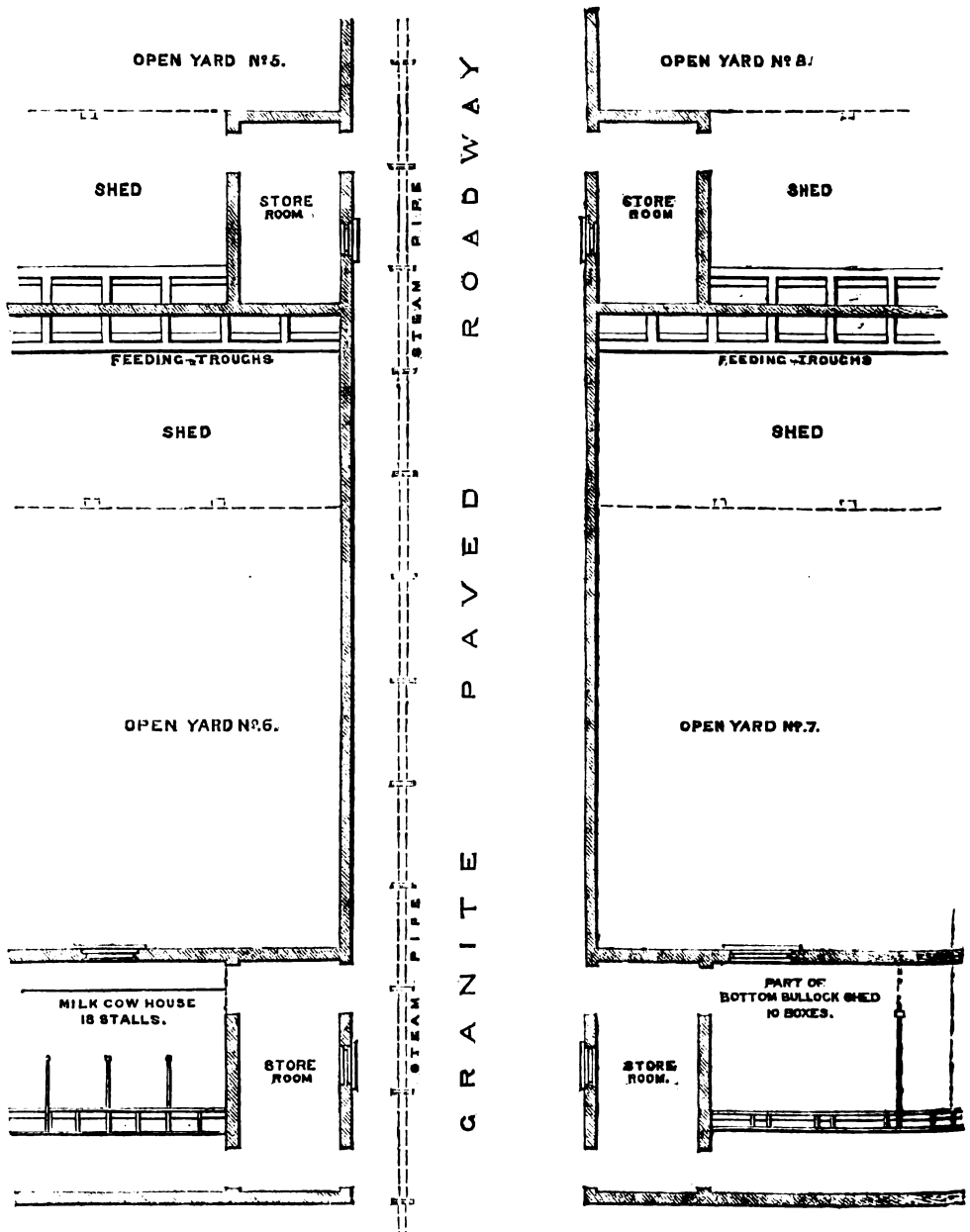
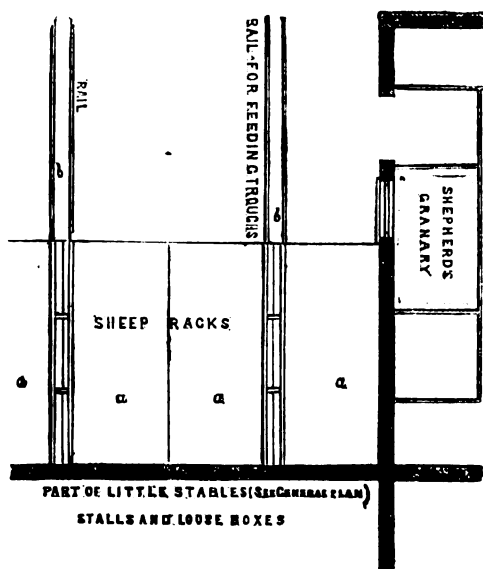


fig. 4 the block of the stables is shown at A, in which *a a* is the central range, provided with a row of loose-boxes on each side; two stalls being at *b*, the stable implements being kept in a stall at *c*, and the water cistern at *d*. The coach-house is at *e*, the store-room at *f*, *g* is the straw, *h* the chaff, *i* the hay-balks. The singeing-house is at *j*, *k* the loose-box, *l* the tool-house, with the water-closet in the corner at *m*. The washing-room is *n*, *o* the

saddle-room, *p* the forge, *q* mounting block being outside it *p-l*, *q* men's room, with stairs leading to room above. Loose-boxes are at *r* and *s* in the second wing, *t* the wash-house, *u* a loose-box, *v v* corn-bin house. The husbandman's house is in the block B, centrally placed between the stables A and the kennels C. In B *a a* are two parlours, a scullery and larder are given in the space *b*, *c* the kitchen, *d* the open yard, *e* the coal-hole, *f* water-closet

(Fig. 4.)



with dust-bin behind it, *g* the wash-house, a "mounting block" is at *h*. In *c*, the kennels, the gentlemen's room is at *a*, *b* the lavatory and water-closet, *c* the meal-room, *d* the boiling-house, *e* coal-yard, *f* yard, with puppy-boxes at *g*, the hounds' lodgings are at *h j p* and *n*, the brushing room is at *o*, *m* is a bed-room, *l* the feeding-house, *k* the medicine room, and *i* the straw-room. A covered room or alley for the dogs being turned into *c* occasionally is at *r r*, *q q q* the yards. In *d*, the whips' cottages, *a a* are sculleries, *b b* covered yards, *c c* the parlours, *d d* the kitchens, *e e* stairs leading to the rooms above. In *x a* is the workshop with tank above, *b* the well-house.

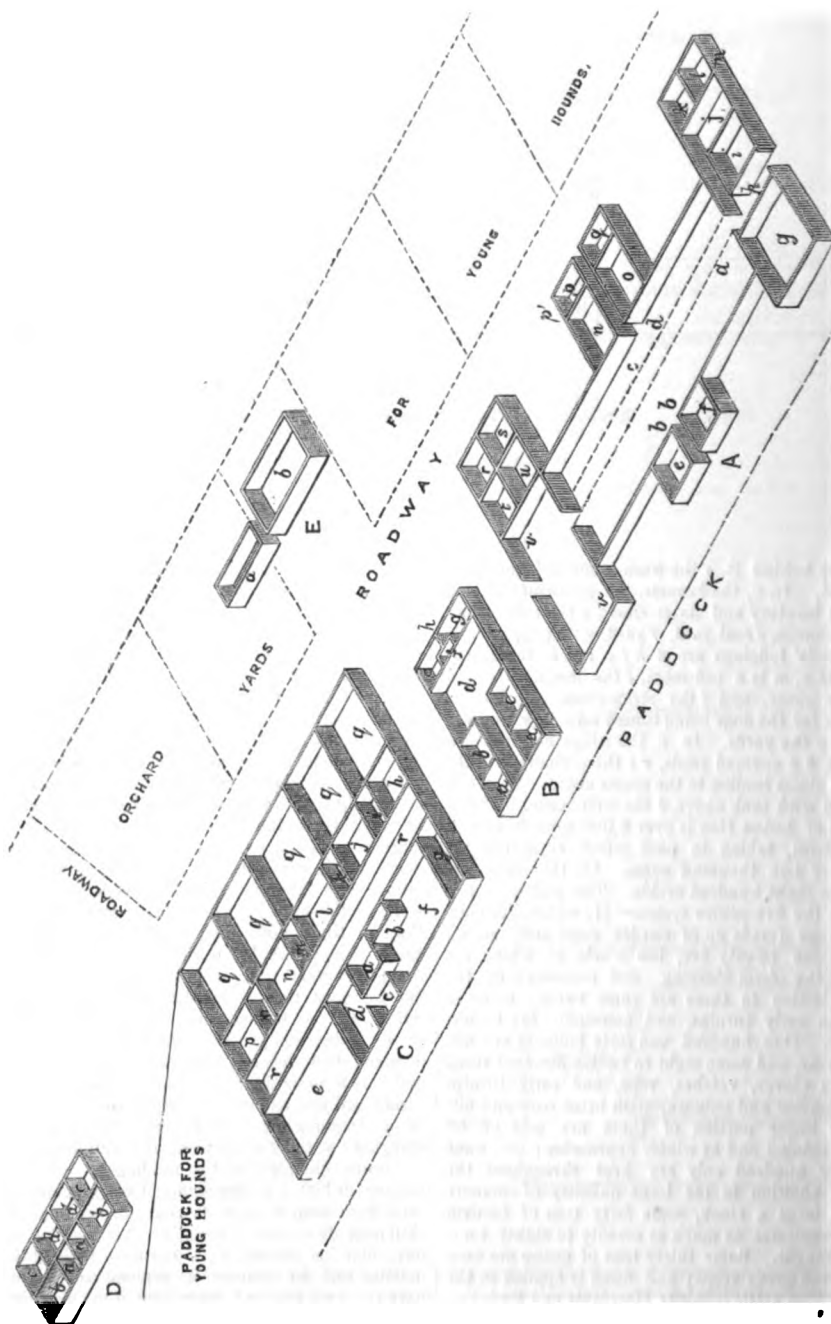
The estate of Luton Hoo is over 6,000 acres in extent. The home farm, taking in park which surrounds the house, is over two thousand acres. Of this there are some seven to eight hundred arable. The arable land is cultivated on the five-course system—(1) wheat, (2) oats, (3) fallow crops (made up of swedes, some sixty acres; mangolds, some twenty-five, the whole of which are brought to the farm-stead, and consumed by the stock: in addition to these are some twenty acres of vetches, some early turnips, and colesseed), (4) barley, and (5) seeds. One hundred and forty bullocks are fattened every year, and some eight to twelve hundred sheep are folded on clover, vetches, rape, and early turnips during the summer and autumn, with extra corn and oil-cakes. The major portion of these are sold off fat through the autumn and as winter approaches; and some three or four hundred only are kept throughout the winter. In addition to the large quantity of manure made by so large a stock, some forty tons of London dung, and sometimes as much as seventy to eighty tons, weekly, are bought. Some thirty tons of guano are used for the oats and green crops; and dung is applied to the grass-lands. The cattle—chiefly Herefords and Scotch—are fed upon barley-meal, roots, and hay. Grains in large quantities—as much as from five hundred to eight hundred bushels—are brought from the Buxton Breweries

by rail. The great object of the farmery is the fattening of stock for the market; and, as our plans and previous papers showed, all the arrangements are designed to carry out this great object. In addition to the fattening stock and sheep already named, some thirty cows are kept, and some one hundred to one hundred and fifty hogs. To maintain this large stock, and to provide and prepare the food which is necessary, necessitates a very large amount of labour in the various operations of cleaning and dunging the animals, cutting the hay, pulping the roots, breaking the oilcake, and bruising, crushing, and milling the corn, and cooking the mashees. And, in addition to the labour thus required, there is a large amount involved in the various works constantly going on in connection with the improvement of the estate; and the feature in the management of all this work is the way in which this labour is organised, so that no time, and consequently no money, is wasted. Each man knows his duties; and he must not only occupy his whole time in doing them, and doing them well, but he must give as rigorous a return of the time he writes as if he formed part of the "hands" of a factory or a machine-shop. With this all realised, we well understand how much "good order" must be maintained, and it is thoroughly so, for one may spend hours in the place, and everything is so quiet that one may think nothing is going on, yet all are busy, all are steadily carrying out the various parts of a well-ordered plan.

Viewing the plans of the buildings, as a whole, it must be conceded that a large amount of practical knowledge must have been brought to bear upon the design, and of skill in applying this. Very much that is suggestive, therefore, may be learned by a thorough inspection of their details; and we venture to express our belief that we have rendered those of our readers who have not had an opportunity to personally inspect the whole, as they now are, a great service in placing before them the various illustrations which we have given in our paper.



(Fig. 5.)



## THE HEREFORDSHIRE AGRICULTURAL SOCIETY.

## MEETING AT HEREFORD.

From some cause, not altogether so apparent, the Herefords would seem to have suffered more from the dead time consequent on the cattle-plague than any other breed of stock. As our report ran, they were either for numbers or merit in the cool shade at Leicester. Nor have the white-faces since shown any bolder front about home. On the contrary, the entries at the autumn meetings in Herefordshire or Shropshire have been miserably small; nor can much improvement be recorded of the once great gathering in their capital. In many of the classes there was little or no competition, in some not a single entry, and in none, with the exception perhaps of the lots of breeding cows, did the exhibition approach to anything like an average of what this has been. Noticeably enough, the failure was yet more unmistakable in other directions. There were in all three pigs shown in two classes, and seven horses in five classes; while in no instance were there more than three pens of sheep pitched, and in two of the five classes the duty of the judges was limited to the consideration of there being sufficient excellence to warrant an award. There were, further, a few dozens of cider and perry to be tasted, a few stands of machinery to be inspected, and two samples of hops sent for the two prizes offered. As a literary production, the strength of the catalogue certainly centred on the advertisements, although its circulation could not have been great; at least as estimated by the attendance on the first day, which appeared to be mainly confined to the officers and exhibitors. If this be apathy, it must assuredly be a very unprofitable policy; and if it be not, bucolics must be going fast out of fashion in Herefordshire.

It is only fair to say that it is not here intended to convey any censure on the management. Tested, indeed, by some of its arrangements, the Herefordshire is an example to other Societies. Nothing, for instance, can be better than the bull, cow, and offspring class; or than that, again, in which exhibitors enter a number of breeding animals regulated by the acreage they occupy. The wholesome effect of such conditions should be to correct the too common abuse, that a show animal is fit for nothing more than show; and it would be well if the "Royal" steward could ever refer to the fact of close upon sixty highly-bred Shorthorn cows being exhibited together in one class in a really breeding state. This, strange as it may sound, was an accomplished fact with as many Herefords in an otherwise feeble demonstration; and here, as already intimated, was the attraction of the occasion. Nothing could have been more legitimate; for many of the cows even from the more famous herds were terribly poor, telling of how hard a fight they must have had of it to find themselves in so trying a season. From the Whitfield lot of ten, however, three or four beautiful heifers might have been picked out sufficiently forward to hold their own in any company; and the five good great cows placed second, spoke to what a small farmer may do with care and judgment. Mr. Evans' entry were indeed remarkably sorry, considering how comparatively few he could have to select from: broad, rather ragged-hipped prolific animals, somewhat tawney-coated in colour, but full of true Hereford character. The well-named Stately, in fact, what with her grand carriage and almost perfect head and horn was, single-handed, one of the handsomest cows in the yard; as she was the third prize at Leicester, where it was pretty generally allowed she should have stood yet

higher on the return list. Mr. Walker's next, the highly commended entry of four good blooming cows, still made so close a contest of it that they might very reasonably have received one of the premiums thrown away in some of the other classes; and it has often struck us that more might be left in this way to the discretion of the judges—to withhold where there is but little, and to supplement where there is much merit. At Hereford, however, it all went by line and rule, and many a premium was duly awarded on the negative showing of there being no opposition. Mr. Rogers, of Coxall, made up two lots of eighteen cows in all, but he might have done better by reducing these to one entry, the more particularly as it is clear he has been very short of keep; and Mr. Wigmore and Mr. Thomas Davies told something of the same story. In a similar class of younger animals the Bickerton herd did better with ten heifer calves, some of which were very pretty and promising, and with no further competition the prize was nevertheless honestly earned.

Again, the bull, cow, and offspring fell to one entry, which still included the now champion bull of the breed, Battenhall, wearing very well, and a good animal at most points, backed by a pretty cow and a good calf, so that in the good old times it would have taken something superior to have beaten the family party from Coxhall. But when one comes to remember what a display of yearling bulls there has been heretofore, nowhere was the decline more marked than in this class, the worth of which was in truth confined to two exhibitors; or, so far as any show or the sales went, this was quickly reduced to one man's entries. Mr. Tudge's first prize, a long, straight-topped animal of fine quality, was so ill that he had to be removed very shortly after the show was opened; and he really looked all to pieces, having gone in his hock, beyond the fever upon him. At best but a delicate calf, they have been using him in the herd since Leicester; and at a year and three months old, he is manifestly all the worse for his work. The second and third prizes, with a high commendation, and another commendation were all very properly divided amongst Mr. Benjamin Rogers' capital half-dozen young bulls, by far the best "proof" of any one breeder's herd in the market-place, or in the market either. After, however, the prize cards had been put up, and we had taken our observation of the animals under them, these were all shifted about in the most puzzling manner, and being all much of a sample, it may be preferable to speak to the bulk. They were all of nice quality, with curly coats and thick flesh, the second prize, as we take him to be, being very strong in these points. But they were all fancied, and the commendations thought by many to be the best of the bunch. Mr. Rogers had refused £100 each for two of these yearlings at home, and they reached to an average of over 70 gs. at the hammer, the prices going pretty much in accordance with the judges' opinion; the second and third prizes, and one of the commendations, making exactly 92 gs. each. Amongst the other exhibitors in this and the following class of young bulls was Mr. Baldwin, of Luddington; but his stock does not promise to make any very grateful return for the spirit with which he went into the business of breeding Herefords. Mr. Morris, two prize bulls again, although as their names would imply, going back to the best blood, are themselves nothing par-

ticular; the one placed first having a tapering cunning kind of head, and standing fearfully out in his shoulders; nor were the old bulls in any way remarkable for their merits, and by the standard of what a Hereford bull should be, it is doubtful whether there was a really first prize animal amongst them. Both the entries of heifer pairs were, on the contrary, to be commended, and the two prizes very properly given; while another class of heifers resulted in no race, and three classes for the famous store steers showed just one entry in all! Nor were the fat steers much better represented, for there were but two, and Sir Joseph Bailey must have a very curious notion of what a fat beast should be, if this one in any way realizes the roast beef at Glanusk. The five fat cows were much better, and Mr. Hill's Villa something to talk of hereafter. She is very small, but barring being rather gaudy behind, in other respects almost perfect; long and low, light in her bone, firm in her flesh, and full of fine quality, and good looks, beginning with quite a lovely cow's head. She is to be heard of again at the Smithfield Club; but will not be sent to Birmingham. Mr. Duckham's cow is also very elegant; and Mr. Gibbons unites plenty of size with firm flesh. And thus "in places" the Hereford still holds his supremacy.

Mr. Davies' pen of Shropshire ewes were very uniform and good, considering so many were shown in one lot, and Mr. Armitage's entry of the same sort very little inferior to the winners. Mr. Wigmore's Cotswold ewes were but middling; whereas Mr. Kearsey's Cotswold ewes, also encountering no competition, were admirable in their way, showing a deal of blood, with a good hand, and being altogether famously turned out; as Mr. Downing's Ryelands were to be commended for the form in which they were shown, and both these pens may still train on. Of the three pigs the prize boar had a head as long as a bowsprit, and the prize cart-mare was chiefly distinguished by her foal, of extraordinary size; as her owner, Mr. Hunt, was further successful with what he calls a three-year-old "hunting" colt, which has been kept entire, although for what purpose it would be hard, if not melancholy, to imagine, assuming him to be nothing more than a half-bred commonish kind of roadster, that can move a bit. There was one entry of cart stallions, and none of hunter stallions; but there were three entries of "nag" mares, with foals at foot. If a nag mean merely a hackney, then possibly Mr. Sherratt's neat cheanut should have been put first; but if a nag be anything for riding purposes, then it is hard to understand how Captain Heygate's famous old Whisky should have been the very first drafted! Twice has she herself taken prizes in the hunting brood-mare class at the Royal meetings; while she is the dam of Mountain Dew and Denmark, two of our most successful show-horses. To say that Whisky was worth the other two would be to pass a very mild criticism, as we might go on to point out her great power, good limbs, and so forth. The old mare was to be sure sent in the rough, and this may serve to account for an award that is otherwise inexplicable.

Amongst the extra stock, the majority of which might as well have gone to make some show in the classes proper, Mr. Thomas Rogers had the old bull Matchless, of great size with some coarseness, and Mr. Tudge a very good thick yearling, called Vandyke, which made 52 gs. at the hammer, Landseer, of course, being withdrawn, although in the auctioneer's list. Saving some excitement over the sale of the Grove yearlings, this business was terribly slack, and it was with difficulty that the Coxall cows and their produce could be sold at any price; some indeed were sent back without a bid. But Belle, 4 yrs., made 14½ gs., and her calf 12 gs.; Violet, 4 yrs., 16 gs., and her calf 9 gs.; Waxy, 20 gs., and her calf 8½ gs.; Gentle, 8 yrs., 16½ gs., and her calf 6 gs.;

Venus, 4 yrs., 15 gs., and her calf 10 gs.; Nelly, 5 yrs., 16 gs., and her calf 11 gs.; Bellona, 9 yrs., 25 gs.; Gentle Annie, 4 yrs., 29 gs., and the heifer calf, by Battenhall, shown with her, 16 gs.; Silver, 17 gs.; Curly, 4 yrs., 21 gs., and her heifer calf 21 gs.; Countess, 9 yrs., 32 gs.; Myrtle, 3 yrs., 18 gs., with no bid for her bull calf by Battenhall; Yellow Rose, 3 yrs., 25½ gs., and her calf 22 gs.; a bull calf, out of Dainty (for which there was no bidder), 5 gs.; and Beauty Spot, 27½ gs. Some of these were prize cows, and fourteen reached to an average of just 21 guineas each; whilst eleven calves, including four bull calves, made 12½ guineas each. On the opening day there were three or four lots of dealers' beasts in the streets, in very good condition, and for which prices ruled high; but the fair itself was small and bad. The stock, as might have been expected, was pretty generally in poor condition, and not more than 2,500 were pitched. There have been 6,000 seen before now at Hereford fair.

### PRIZE LIST.

Judges.—*Cattle*: S. Urwick, Leintball; W. Bennett, North Cerney, Cirencester. *Horses, Sheep, Pigs, Hops, Implements*: J. Walker, Knightwight, Worcester; G. Bedford, Milton, Pembroke. *Older and Perry*: H. C. Beddoe, Hereford.

#### CATTLE.

Ball, cow, and offspring, calved on or after July 1, 1867.—First prize, £10, T. Rogers, Coxhall, Brampton Bryan (Battenhall and Annie); second, £5, no competition.

Bull, calved on or after July 1, 1867.—First prize, £10, W. Tudge, Adforton, Leintwardine (Landseer); second, £5, B. Rogers, The Grove, Pembridge (Blucher); third, £2, B. Rogers (Lord Nelson); highly commended, B. Rogers (Acceptable); commended, B. Rogers (Luxury).

Bull, calved on or after July 1, 1866.—First prize, £5, J. Morris, Town House, Madley (Stowe); second, £3, J. Morris (Monkhouse); highly commended, J. Vaughan, jun., Brobery Court, Hereford (Abdel Aziz).

Bull, calved previously to July 1, 1866.—First prize, £5, J. Morris (Principal); 2nd, £3, J. Williams, St. Mary's Farm, Kingland (Sir George); highly commended, C. H. Hinchman, The Poles, Bromfield, Ludlow (Sir John).

Lot of beasts, irrespective of sex, bred by a tenant farmer, under two years and six months old, in proportion to the quantity of land that he occupies, as follows: The tenant-occupier of not exceeding 100 acres, to show two beasts; ditto 150 acres, to show three beasts; ditto 200 acres, to show four beasts; and in the same proportion for every additional 50 acres, up to 500 acres.—First prize, £5, J. Wigmore, Bickerton Court, Much Marcle (ten heifer calves); 2nd, £3, no competition.

Pair of heifers, calved on or after July 1, 1867.—First prize, £5, William Tudge, Adforton, Leintwardine; second, £3, T. Woolley, Weston Court, Pembridge; no further competition.

Pair of heifers, calved on or after July 1, 1866.—First prize, £5, second £3; no entry.

Pair of steers, calved on or after July 1, 1867.—First prize, £5, second £3; no entry.

Pair of steers, calved on or after July 1, 1866.—First prize, £5, second £3; no entry.

Pair of steers, calved on or after July 1, 1865.—First prize, £5, T. Duckham, Baysham Court; second, £3, no competition.

Lot of breeding cows or heifers, not under three years old, that have had a calf within six months, or shall be in calf at the time of showing. The occupier of not exceeding 100 acres to show two beasts; ditto 150 acres, to show three beasts; ditto 200 acres, to show four beasts; and in the same proportion for every additional 50 acres, up to 500 acres.—First prize, £10, the Rev. Archer Clive, Whitfield, Hereford (ten heifers in calf); second, £5, H. R. Evans, jun., Swanstone Court, Leominster (five breeding cows); highly commended, J. Walker, Westfield House, Holmer (four breeding cows and heifers).

Fat cow or heifer.—First, £5, R. Hill, Orleton Court, Ludlow (Villa); highly commended, H. Gibbons, Hampton Bishop (Princess), T. Duckham (Duchess of Bedford).

Fat ox or steer.—First, £5, W. Dew, Kilverholl, Much Deverchurch.

## SHEEP.

Pen of twenty Shropshire Down or short-woolled breeding ewes, under three years and eight months, and not having more than six teeth fully grown, that have suckled lambs to the 1st June, 1888.—Prize, £5, T. Davies, Burlon Court, Burghill (Shropshire).

Pen of twenty long-woolled breeding ewes, under three years and eight months, and not having more than six teeth fully grown, that have suckled lambs to 1st June, 1888.—Prize, £5, J. Wigmore, Bickerton Court, Much Marels (Cotswold).

Pen of five yearling wethers, long-woolled.—Prize, £5, C. Kearsey, Glestons, Ross (five Cotswold sheep). No competition.

Pen of five yearling ewes, long-woolled.—Prize, £5, J. Davis, Webton Court, Madley (long wool). No competition.

Pen of five yearling wethers, short-wool (cross breeds not excluded).—Prize, £5, J. B. Downing, Holme Lacy, Hereford (Wye).

Pen of five yearling ewes, short-wool (cross-breeds not excluded).—Prize, £5, A. Armitage, Dadrnor, Ross (Shropshire).

## PIGS.

Boar pig, under two years of age.—£3, Rev. A. Clive.

Breeding sow that has brought a litter of pigs within three months, or being in pig.—£3, Rev. A. Clive (sow with six pigs). No competition.

## HORSES.

Stallion best calculated to produce good hunters, £5.—No entry.

Best cart stallion, £5.—J. Hyde, Riffin Mill, Bodenham, Herefordshire (Emperor). No competition.

Three-year-old colt, gelding or filly, suitable for hunting purposes, bred in Herefordshire, £5.—C. Hunt, Moor Farm, Widemarsh, Hereford. No competition.

Nag mare with foal at foot, £5.—J. Findlay, Garnstone, Weobley (Rebekah); commended, A. Sherratt, Ocle Pichard, Hereford (Polly).

Cart mare with foal at foot, £5.—C. Hunt, Moor Farm, Widemarsh (Lester); commended, J. Morris, Town House, Madley.

## EXTRA STOCK.

T. Rogers, Coxall, Brampton Brian, 20s. (bull, Matchless); J. Rawlings, Stoke, Tenbury, 10s. (cow, Beauty); H. Griffiths, Devereux Wootton, Weobley, 10s. (cow, Miss Devereux); T. Rogers, Coxall, 10s. (heifer, Queen of the Valley); Col. Failden, Dulas Court, Hereford, 10s. (pair of steers).

## CIDER AND PERRY.

Dozen of cider from fruit grown in 1887.—First prize, £2 10s., W. H. Apperley, Withington; second, £1, T. Davies, Burlon Court.

Dozen of perry, from fruit grown in 1887.—1st prize, £2 10s., W. Hill, Eggleston, Dedbury; second, £1, J. Wigmore, Bickerton.

## HOPS.

Sample of hops grown in the county of Hereford; the sample to be not less than five pockets, to be sold in Hereford, and pitched in the showyard during the show.—First prize, £5, W. Taylor, Thingehill, Hereford; second, £3, J. Walker, Westfield, Holmer. No further competition.

## IMPLEMENTS.

Collection of agricultural machinery and implements.—First prize, £3, Hubert Smith and Co., Hereford; second, £2, S. A. and H. Kell, Ross.

W. and H. M. Goulding, Cork, 20s. (samples of artificial manures, and specimens of roots and grain grown from).

I. James, Tivoli, Cheltenham, 10s. (liquid manure distributor, &c.)

T. Corbett, Perseverance Works, Shrewsbury, 10s. (eclipse winnower, fitted with self-cleaning screen).

## SALE OF YEARLING HEREFORD BULLS.

THE PROPERTY OF MR. B. ROGERS, OF THE GROVE.

LORD NELSON, calved October 8th, 1887, by Sir Thomas (2228), dam Prettymaid, by The Grove (1764), 92 gs., Mr. Featherstonhaugh, Ireland.

ACCEPTABLE, calved November 15th, 1887, by Sir Thomas,

dam Spark, by The Grove, 61 gs., Duke of Bedford, Woburn Abbey.

LUXURY, calved November 10th, 1887, by Sir Thomas, dam Leen, by Bertram (1613), 92 gs., Mr. Robinson, The Moor, Kingston.

ADMIRAL, calved October 13th, 1887, by Sir Thomas, dam Curly, by The Grove, 50 gs., Mr. Morris, Dewall.

PEMBROKE, calved December 25th, 1887, by Sir Thomas, dam Daisy the 3rd, by The Grove, 34 gs., Capt. Power, Ross.

BLUCHER, calved December 14th, 1887, by Sir Thomas, dam Blandy, by Sampson (1061), 92 gs., Mr. George, Felton, Bromyard.

At the dinner Sir JOSEPH BAILEY, M.P., said there had been a kind of little friendly agitation going on for the purpose of establishing, if we could, what were called county financial boards, by which were meant boards in which the old magistrates and the new ratepayers should be united to manage the affairs of the county. Now, he fully agreed with what a committee of the House of Commons said upon this point—viz., that the magistrates have managed right well the financial affairs of the ratepayers; but then the committee went on to say that the ratepayers wished now to take the affairs into their own hands, and that if they wished it they had a right to do so. He would add to that and say, for his own part, he should like to see the representatives of the ratepayers not simply taking their share in the management of the financial affairs of the county, but also, united with the magistrates in quarter sessions, in managing the whole civil affairs of the county. He thought, from his own experience as chairman of a board of guardians and of a highway board, and from matters of a similar nature, that they would act together right well. There was no doubt that a measure would be brought into Parliament early in the session to promote this object, and if honoured with a seat in that Parliament, he should give it his hearty support; and he felt assured, from the opinions he had heard expressed on every side, by different members of the House of Commons, that no one would dissent from it. As to national taxation, that was fair enough. The army and navy and the government were supported from the excise, the customs, and the income-tax; but when we came to local taxation he wanted to know what share of it did the commercial wealth and personal property of England bear. And he would reply, None. He would ask, again, those who were the owners and occupiers of real property of the country, what proportion of local taxation did that property bear? And he would reply, All. In the opinion of a great man, he would say that was not fair; and he would ask what was the remedy for it? He knew that the popular remedy was that personal property should be rated the same as real property; but where would they rate personal property? Where was Rothschild to be rated? Was he to be rated in the parish in which he lived and none of the rest of the country to have the benefit, or was the nation to have the benefit? That, as it appeared to him, would open the question of general rating, and would take the management of the rates out of their hands when they, the ratepayers, wished to have it in their hands. The second project would be that, while the local taxation of the country was imposed as at present on real property, a large share of national taxation should be thrown on personal property; and if that were done, he thought the Government might easily give some help towards turnpike-roads and such like out of the consolidated fund. For his own part, he could not help thinking that by some such means they might, without any serious disturbance, arrive at something like a fair taxation of the country.

Mr. GEORGE CLIVE, M.P., said that since the introduction of railways, tolls were but little helped by the through traffic, but were practically paid by the localities in which the gates stood. Upon this subject he had brought in bill upon bill, unfortunately hitherto without success; and he had been generally met by two objections—the first as to the debt. It had been asked who was to pay the debt? and to that his answer was, that the debt had been decreasing for years, until it was now reduced to a comparatively small sum, and that the landowners might be willing to take upon themselves. The next point was as to the repair of the turnpike-roads. It was said how very unjust it would be to fasten that upon the parishes through which the roads passed; and his answer to

that was that that was the law as it now stood; and, upon the abolition of the tolls, or upon the expiration of the different turnpike acts, most of which had now but a few years to run, the expense of maintaining the roads for many miles out of Hereford would be thrown most unjustly upon the respective parishes through which the roads passed, instead of upon the districts generally. When he had mentioned that in the House of Commons he had been told that the repairs could not be thrown upon districts, because the Highway Act is not compulsory, and therefore not universally adopted, many places having rejected it. He was glad to hear from the president that the Highway Act—with the passing of which he had a good deal to do—had been successful. In speaking of the repairs of the roads—not of the debt—he would say that why those repairs should not be spread over the whole county, when the whole county benefited by the roads, was a thing which he could not see. He could not see why, because in the north of England parishes generally were opposed to the Highway Act and had not adopted it, we in the west and south-west should be compelled to submit to the injustice of having to repair those roads by charges upon parishes. This was the difficulty which must be met in the next Parliament. Promise after promise had been made by ministers but never fulfilled. The present and the late Home Secretary had made promises, but had never fulfilled them. The other subject to which he had referred was the one touched upon by the Chairman, viz., county financial boards. He drew a bill upon this subject; bills were also drawn by two other members—one a Conservative and the other a Liberal—and when he found that those bills were very elaborate he withdrew his. A committee was appointed, upon which he sat, and they examined a great many witnesses. The witnesses who had been examined all gave their evidence precisely to the same effect. The committee was composed of gentlemen chosen equally from each side of the House, and some of them, to his knowledge, attended the committee strongly prejudiced against financial boards, but at the end of the inquiry they were much in favour of them. They agreed on two points—first, that there had hitherto been no waste of the public funds—that the magistrates had administered those funds as well as they could have been administered; and secondly, upon which they came to an almost unanimous conclusion, that the agriculturists, in accordance with their wish, ought to have a share in the management of the county finances—not that it was by any means certain that those finances would be better administered then than they were now, but because all people liked to have “a finger in the pie” as to the expenditure of funds to which they contributed.

Mr. JANCY referred to the turnpike toll question, expressing his opinion that it was unfair to have one law for one part of the county and another law for another part. In one part of the county tolls might be abolished, and there the respective parishes had to bear the expense of maintaining the roads; but as soon as the residents of that district, perhaps a very small area, passed into another district, they might be called upon to pay tolls, and that he held to be most unfair. In some parishes there was a large extent of road to be repaired, while other adjacent parishes, though bringing a large amount of produce over those roads, would not pay a farthing towards the maintenance of them. He had heard a suggestion for county boards for the management of turnpikes, but he thought that such an area would be too large for proper and economical management, and that it would be better to have districts co-extensive with the present highway districts, each parish contributing upon the principle of a common fund. He further thought it would be no injustice to ask Government to pay a certain sum towards the expenses of officers and certain other charges, as it now did in the matter of the county constabulary and also in the prosecution of felons. If that were done, the other expenses might be thrown on the districts generally, and then he did not think there would be much to complain of.

Mr. J. VAUGHAN, referring to the subject of the Metropolitan Cattle Market bill, and laying it down as an undisputed proposition that the cattle plague was an imported disease, contended that a proper regulation for the prevention of the outbreak of that disease was a subject which affected not simply the agriculturists but the consumers of this country. On the subject of county financial boards, Mr. Clive had said that the agriculturists would like to have “a finger in the pie;” but he (Mr. V.) felt that it was not so much on that ground as on the

broad principle, recognised in the last session in the extension of the suffrage, that taxation and representation should go hand in hand. It was on that principle that the agriculturists asked for “a finger in the pie,” and not that they charged the county magistrates, in any degree whatever, with improper usage of the county money. He believed the magistrates had done their best; but he also believed that those who had to pay had a right in principle also to have their say.

Mr. DUCKHAM could say something as to the loss which this country had sustained from imported diseases; and as he had before him some statistics, he would state that during the six years previous to the outbreak of the plague the estimated losses from pleuro-pneumonia was £9,600,000, and from the visitation of the plague nearly five millions. Thus our pastures were devastated, and animals which should have been increasing in value were swept away. The calculator who had given these estimated losses had advanced the opinion that the real loss in those few years sustained by imported diseases amounted to 25 millions; and it was easy for any one to see that if this sum of 25 millions had remained in England and had been circulated in the trade of the country, it would have been much better than paying it away to buy food to feed the people to supply those losses which had been sustained from imported diseases.

Mr. J. WHITE (Australia), having spoken of this being his first visit to his native country, alluded to Australia as being essentially a pastoral country, its wealth chiefly consisting of sheep, yet there were in those colonies upwards of eight million cattle. There had been large importations of Hereford cattle to Australia; during the short time he had been in England he had shipped a great many, and hoped, before he returned, to ship a great many more. Having come some distance to attend the show, he must say he expected to find, in the home of the Herefords, not only animals of the best quality but also great numbers of them. He was, however, extremely disappointed as to the number, and he could tell them that he had seen almost as many Herefords brought together in Australia. He proceeded to say that, although disappointed, he was willing to believe the smallness of the show was attributable to the effects of the cattle plague and not to any indifference as to the importance of maintaining so excellent a breed of cattle.

## CORN AVERAGES.

SIR,—At this time, being the termination of the farmer year, I again take the opportunity to send you a statement for the information of your agricultural readers, and especially for those who adopt the system of corn rents, based on an average price of Wheat, Barley, and Oats. The averages deduced from the weekly returns published in the *London Gazette* give the following results for the 52 weeks ending the 28th of September: Wheat, 67s. 9d. per imperial quarter; Barley, 41s. 1½d. ditto; and Oats, 27s. 6½d. ditto. The following abstract shows the dates of the highest and lowest prices during the same period:

	Highest price.	Lowest price.	Difference.	
Wheat, May 12....	74s. 7d....	Sept. 28 ...	53s. 7d....	21s. 0d.
Barley, Apr. 28....	45s. 2d....	July 28 ...	35s. 8d....	9s. 6d.
Oats, July 28....	31s. 4d....	Oct. 24, 1867	24s. 4d....	7s. 0d.

The extreme range of the price of Wheat has been a gradual rise from 63s. 5d. per quarter on the 8th of October, 1867, to 74s. 7d. on the 19th of May last, when it attained its highest price, and has since fallen to 53s. 7d. on the 28th of September, its lowest price during the year.

CHARLES M'CABE,  
Secretary University Life Assurance Society.  
24, Suffolk-street, Pall Mall.

On this letter Mr. Montague Marriott, Editor of *Willch's Tithe Commutation Tables*, comments as follows in the *Times*: “Your impression contains a letter purporting to give the average prices of British corn for the 52 weeks ending the 28th of September, 1868, as follows: Wheat, 67s. 9d.; Barley, 41s. 1½d.; Oats, 27s. 6½d. The real figures are: Wheat, 67s. 9d.; Barley, 41s. 10½d.; Oats, 27s. 6½d. This may appear a very trifling matter, but it would make a difference of about 17s. 6½d. on every £100 of corn rent calculated on the annual averages of Michaelmas, 1868.”

## THE PRODUCTION OF MILK IN FRANCE.

The small-cotter system and the sub-division of labour in France, coupled with the enormous demand for milk, butter, cheese, and eggs, lead to a production which rivals in extent that of Great Britain; and for some of these articles we are largely dependent on our continental neighbours. The production of milk in France is very considerable, the number of cows amounting to more than five millions. The departments of Calvados, Orne, La Manche, Seine Inférieure, Loiret, Nord, and the Vosges, are those which supply the largest quantity of milk. For Paris alone the consumption is set down at about 500,000 litres (of 1½ pints). Milk is sold at from 1d. to 4d. a litre, according to the localities and quality. From 25 to 30 per cent. of water is often added; but the alleged frauds are, we believe, exaggerated, and the authorities use strong means to ensure the milk being sold pure, although doubtless the cream is often separated.

The railways have given great facilities for the transport of milk from the departments. On the Paris and Lyons line the rates are fixed at 1½ to 2½ cents (an average of 1½d.) per litre for the entire distance. This includes the return of the tins, or earthenware vessels employed for the milk, which contain usually about 20 litres. Milk is brought to Paris by the railways from a radius of more than 100 kilometres (of five furlongs): indeed, by the Eastern railway it is brought even from a distance of 190 kilometres (nearly 120 miles). About 350,000 litres are thus brought daily into Paris, exclusive of that from cows kept within the city or the suburbs. The milk from the country places is despatched at night, and arrives at the metropolitan stations about two in the morning. It is then carted and distributed over different localities so as to supply the whole of the city by six in the morning. It is bought wholesale from the farmer at an average price of about 1d. the litre, and is sold, after transport, at 1½d. to the contractors, while the retailers vend it, usually, at 2d. to 3½d.

The production of milk from cows necessarily varies according to the breed, food, and other conditions. For instance: M. Fievet, of the farm of Masny, in the north of France, who obtained the prize of honour for the department Du Nord, in 1863, gives, as the result of his experience, seven litres of milk obtained daily per head all the year round, from Flemish cows. The average yield of milk, however, varies considerably both in quantity and quality. From four cows fed in the same manner he obtained, in seven days, the following results:

Litres milk.	Kilogrammes butter.	Milk daily.	Butter from 100 litres of milk.
139	7.5	19.8	5.5
133	5.0	17.5	4.1
137	4.9	18.1	3.8
135	3.9	17.8	3.1

From time immemorial the fruiterers have been in the habit of selling, in Paris, cream, cheese, butter, and eggs; but owing to the immense growth of the consumption in the city, the sale of these articles has reached a sufficient magnitude to form a special branch of industry. The greater part of the wholesale butter and cheese merchants are centred around the great markets, and have principally for customers the pastry-cooks, the restaurateurs, and the trades which require eggs for albumen. The milk and cheese-retailers, on the contrary, are scattered

over the city, selling especially eggs, milk, butter, and new, or soft cheese. The others sell cheese from various departments and countries. There is only one kind of cheese made in Paris itself, called Swiss. These little cheeses require to be sold immediately, as they will not keep, and are therefore made in the localities where they are sold. In 1860 there were nearly 1,000 persons engaged in selling dairy-produce in Paris. The annual consumption of cheese in Paris is about 5,500 tons, and the exports amount to nearly as much. It would not be far from the truth to state that, for the whole of France, the consumption exceeds 100,000 tons.

The manufacture is principally carried on in the departments of Aveyron, Seine-Inférieure, Calvados, Loiret, Marne, Seine-et-Oise, Creuse, Cantal, and Vosges. The conditions of the manufacture differ according to the character of the cheese to be made. Thus Roquefort is made with sheep's milk, in specially-constructed cellars, at a constant temperature of about 53° Fahrenheit; Neufchâtel cheese is prepared with cows' milk and cream; Camenfort with milk skimmed slightly, and with particular care; that of Brie is obtained in the form of a soft paste, and in the manufacture of double cream-cheese rich cream alone is employed. The Roquefort cellars deliver annually to the trade 2,750 tons; the sale of Camenfort cheese amounts to £20,000; and the quantity of Brie cheese sold annually in Paris represents a sum of £80,000. The dry cheeses most consumed in Paris are Gruyère, Roquefort, Auvergne, Septmoncel, and Sassenage. The foreign cheeses are Dutch, Parmesan, and Chester.

The consumption of cheese progresses gradually with the population. The ordinary prices, per 100 kilogrammes, are, for Gruyère, 125 to 150 francs; Roquefort, 250 to 350 francs; Septmoncel, 250 to 260 francs; Auvergne, 100 francs; Dutch cheese, 130 to 180 francs; Parmesan and Chester, 260 francs. The Octroi duty for dry cheese is 9½ francs the 100 kilogrammes.

The Roquefort cheeses are made in the department of Aveyron, and are bought all the year round; but principally in the months of March, April, and May at the local fairs, by the proprietors of the celebrated Roquefort caves. The weight of the cheeses fresh are 3 to 4 kilogrammes (8lbs.) Roquefort is situated in one of the gorges of Larzac, and the cellars are established in the crevices and immense galleries of the rocks, where great currents of air of a cold temperature circulate. The cheeses are conveyed on the backs of mules, clasped, salted, manipulated, and pressed, and they are fit for delivery at the end of summer. There are about 400,000 sheep in the vicinity of Roquefort, of which 250,000 are milch ewes, kept for their milk, and the production in cheese in 1866 reached nearly 7,000,000 pounds.

There are three qualities, or classifications, between which there is a difference in price of 1½d. to 2d. per kilogramme. The first new cheeses are sold about the end of August, at 120 to 130 francs the 100 kilogrammes, and the cheese longer kept, at the end of September at 200 to 225 francs. The first are sent off in baskets containing four cheeses each.

The cheeses of Septmoncel or of Moussierès, villages situate at a high latitude in the Jura, where the temperature is also cold, are made with a mixture of cows' milk and goats' milk. This cheese resembles Roque-

fort, but is considered finer, and is made in shape like Gruyère, each weighing 8 to 10 kilogrammes: it is sometimes called Gex cheese. The cheese of Auvergne, or Cantal, is in cylindrical shapes of 35 to 50 kilogrammes. The first cheeses are delivered in the spring, about the time when the cows ascend the mountain; the second, more esteemed, are made in May. Sassenage cheese is made with a mixture of cows', sheep's, and goats' milk,

in the environs of the small town from whence it takes its name, not far from Grenoble. It is in shapes of 3 to 4 kilogrammes. The soft fresh cheeses give rise to an enormous commerce. The kinds principally sold are Brie and Monthéry; these are sold by the dozen, or by the hundred. The most esteemed Brie is that of Coulommiers. The weight of ten Monthéry cheeses is 12½ kilogrammes, while those of Brie are double that weight.

## THE CHESHIRE AGRICULTURAL SOCIETY.

### MEETING AT CREWE.

The cheese was thoroughly worthy of the Cheshire society, though the remark is better applicable to the first or champion class than the rest. This contained no fewer than 21 entries, and about 20 lots were brought to the stand, all being at least of excellent average make. Last year Mr. Gibbons competed with some Cheddar, but this year, though he entered, he sent nothing, and all exhibited was of Cheshire make. It was not, however, all of one colour. The salmon tint with which eaters of Cheshire cheese are familiar is going out of fashion in some localities—Manchester, for example, where the uncoloured is being substituted. There were only a few samples of white put on the board on Wednesday, but two of these took the first and second prizes respectively. Whether this was to any extent caused by the fact that one of the judges was a Manchester man, we will not pretend to say. One thing, however, is certain, that of the two the uncoloured cheese is clearly the least adulterated; and all the makers tasting Mr. Prescott's first-prize cheese agreed in praising its quality. It had some peculiarities about it. We are told that it was but six weeks old—certainly a very remarkable fact, indicating in itself the changes of fashion in cheesemaking. A very fresh taste was the consequence, leading the majority of people to think it would be better if kept somewhat longer. Mrs. Prescott stated, in answer to an inquiry, that the rennet was applied at a temperature of 90 deg.—rather higher than the average. Mr. Prescott has not competed before. The second prize-taker, Mr. William Beckett, of Winsford, has been an exhibitor previously, though not of late years. He also took the second prize in the next class—that for new cheese of smaller make, which was not by any means so well filled as the first. The classes for cheese not made on the Sunday showed about the average entries. The butter exhibited was not very considerable in amount, and the makes differed a good deal. The dairy of Mr. S. Davies, of Eardswick Hall, took the first prize.

In the horned stock class the bulls made a creditable appearance, eight out of ten entered in the chief section being exhibited. The chief prize-taker, which belonged to Mr. G. Willis, of Ridley Hall, was a nice compact white animal, very well built and of moderate size. The second nearly of the same age and not dissimilar in figure; though the bull more nearly resembling Mr. Willis' was "Felix," belonging to Mr. Burgess, of Burleydam, a larger but not quite so neat an animal, which was highly commended by the judges. Several good yearling bulls and a number of bull calves were shown both by proprietors and tenant farmers. The dairy cow classes were rather meagre, and neither here nor among the heifers and stirks were there any very remarkable specimens. A complaint was made that whereas a year or two ago the tenant farmers were dissatisfied with the landed proprietors taking off all the best prizes, and the awards had been since divided with a view to prevent such an unequal rivalry, some tenants were now entering in the landowners' classes where they found them to be vacant, and so appropriating awards which did not belong to them.

The show of horses was more than an average one, and many competent to pronounce an authoritative opinion said they had not seen it equalled before in Cheshire. There was not only a good number of entries in each class, but the animals were for the most part sound, and those for agricultural purposes of a high order of merit. Mr. Leather, the well-known breeder of entire horses, distanced all his competitors with "Tom Sayers," a celebrated cart-stallion,

and the cynosure of all farmers at county shows; while "Prince," the second horse, and "Young Conqueror," the latter shown by Mr. W. Phillips, Northgate-street, were worthy of their handsome sire. The prize for the best pair of carters was not, as some seemed to expect it would be, borne off by the Stonetrough Colliery Company, but by two powerful animals, the one 17 hands, and the other 16 hands 2 inches, the property of Mr. Bourne, of Goldsmith House. In the roadster class, however, the Company stood out prominently with "Yankee," a fine brown mare with some excellent points. Mr. Gibbs' "Fanny," the second mare, was no mean opponent, and some judges would have preferred her. As far as we could see, the competition in a similar class for agricultural purposes was keen, and Mr. T. Lowe, of Calveley Hall, challenged Mr. Leather for the first so successfully, that only a careful judgment decided in favour of the eminent breeder. Among the hunter classes Mr. Barton's "Claret," a brood mare, which has won at the Southport, Birkenhead, and Manchester shows, got the first prize, with a close run against one or two tolerably good aged mares, and mares with foals. The great attraction of the day, so far as the general public were concerned, was the judging of the hunters, which took place in the enclosure on the western side of the goods station, within the show yard. Mr. Gibbs' "Alonzo" and Mr. Sutton's "Ranger" were ultimately alone in the competition, the former horse taking the first prize.

The sheep were as a rule good, and tolerably numerous. There was a considerable range of entries in the long-wooled classes, but these were exceeded by the short-wooled, the quality of which, too, was very fine. The short-wooled rams were in specially good condition, and here two well-known breeders, Mr. Burnham, of Spital, and Mr. Jones, of Agden, took of the first and second prizes in both classes, though several others were highly commended by the judges.

The entries of pigs were not numerous, but the breeds were fair, and where there was no competition, in one or two instances, a prize was deservedly given. Earl Grosvenor and Mr. Davies, of Eardswick, showed some animals of much merit, and the white breed of the labourers and cottagers' classes were well fed.

At the Dinner Mr. JOHN TOLLEMACHE, M.P., said he would say a few words with respect to the cattle-plague. Last session a bill was brought in referring to this subject, and Government, in his opinion unfortunately and unwisely, withdrew that bill, owing to its being opposed by a somewhat unscrupulous opposition. Much as he regretted the withdrawal of that bill, believing it would have given them some additional security, still he acknowledged he was under little or no apprehension as to another formidable outbreak of cattle-plague in this country. And for this reason: he believed the country was so fully alive to the fearful character of that disease, that if ever it made its appearance in our ports again, it would be stamped out before it reached Cheshire, as it would have been before had it not been for the supineness of Government. When the late Act was passed, it was too late for Cheshire, for then hundreds of thousands of our cattle were dying, and the whole atmosphere was loaded with poison. Some cattle, however, were then recovering, and did recover, instead of being slaughtered as they would have been had the Act been rigidly carried out. Thank God we were now free from the cattle-plague in Cheshire; and he must say he agreed with a great deal of what had been said



respecting the conduct of the farmers under the infliction. It was impossible for landlords to reflect on the manly and becoming way in which the farmers of this county, under the most crushing losses, met that heavy dispensation of Providence, and the spirit and energy with which they contended with overwhelming difficulties in renewing their stocks, for afterwards carrying on agricultural operations—it was impossible, he said, to reflect on this conduct without feeling the greatest admiration for it, and the greatest pride in having such men for their tenants. With regard to his own estate, which suffered not more but as much as any in this county, such had been the energy and spirit of his tenants that he believed he should not lose a single tenant as a result of the plague, fearful as its ravages had been. But though we were free from cattle-plague, we were not free from its consequences. A large sum of money, borrowed from Government on the most reasonable terms that the House of Commons would assent to (and he had had a great deal of communication with the Government on the subject), had been paid to the county as compensation, though he was sorry to say had not been paid to all who had lost their cattle. Now after that large sum of money had been borrowed, the ratepayers of Cheshire—notwithstanding the exertions to throw it upon the consolidated fund, and so make it a national rate—were answerable for repayment; and he could not but think that the ratepayers of Cheshire, who were consumers of beef, cheese, and butter, and had enjoyed for so many years the advantages of that valuable property the Weaver trust—a property given by certain landed proprietors to the county itself—should share in this burden. They must recollect that some of the farmers had lost nearly the whole of their stocks previous to the passing of the Stamping-out Act, and therefore could not receive any compensation whatever; and to compel men who had sustained such losses to contribute to others whose losses might have been less, would be a most cruel hardship and injustice. There was a clause in the Act of Parliament which, he believed, it was the intention of the legislature should give powers to the magistrates to relieve such cases; and he did hope and trust that the magistrates of this county, if they possessed such a power, would exercise it. He believed the unexpected and providential discovery of gold had increased so enormously the wealth and consuming powers of this and foreign countries, and raised so enormously the price of labour here and abroad, thus enhancing materially the cost of production, as to leave the agriculture of this country very little to fear from foreign competition. He knew that was the opinion of farmers in Suffolk, partly, as he had said, owing to the great increase in the wealth and therefore consumption of this country, but great also to the extraordinary rise in prices abroad. Whenever corn had risen to a high price, it had always been followed by a check in importation. But let them look at the importation of cheese. That had gone on increasing with hardly a fluctuation. The year before last it exceeded 800,000 cwt.; last year it was upwards of 900,000, and he had no doubt that this year it would exceed 1,000,000 cwt. This showed, as far as the staple of Cheshire was concerned, that we were exposed to a very formidable competition, which competition he believed would increase in intensity, unless they did two things; one, to improve the quality, not of our best dairies, for that was impossible, but of the bulk of Cheshire cheese; and secondly, to reduce the cost of production of that cheese. If we could accomplish these things, we should soon find that we should have no reason to fear the foreign farmer as regarded cheese. When he (Mr. Tollemache) was in the Channel Islands a few months ago, he went into a cheese-merchant's warehouse and asked him to show him some Cheshire cheese. He replied that he had not a pound of Cheshire cheese in his warehouse, nor had had for several years, though he supplied most of the Channel Islands with cheese, and also the neighbouring coast of France. He added, that prime Cheshire sold at a price too high for his customers; and as for second class, he found they preferred Cheddar and foreign cheese. There was no cheese varied so much in quality as Cheshire. As regarded cheese, therefore, he could not but think there was great room for improvement. It had struck him that it was madness for those who could not acquire the knack of making first-class Cheshire cheese to go on attempting to make that description at all; for, although he was not a practical farmer, he had interested himself so much in agricultural matters as to know that to make Cheshire

cheese in perfection required a knack which many could not acquire. As regarded Cheddar, it was made more according to rules; and any careful dairywoman who would strictly follow those rules was almost certain to succeed. The way to reduce the cost of production was to increase the produce of the land, and of that he believed we could do a great deal in Cheshire. As regarded his own estate, he was confident the produce of the land might be enormously increased, while labour might be economised both directly and by making the dairy arrangements as perfect as possible. It was necessary, in his opinion, that the landlords should work with the tenants in increasing the production of the land; and if the tenants had not the capital to bone and drain the land, he could not but believe that the landlords would do and should do so. If the landlords would do this, and the farmhouses were made as efficient as possible, the least dairymaids who made a second class of the cheese could do was to make cheese of a superior quality by adopting some different plan. He believed that the Cheshire farmers and their wives could and would improve the quality of the cheese, that the landlords of Cheshire were working with their tenants to reduce the cost of its production; and if they did so, they would be enabled to compete successfully with foreign farmers in cheese as they did with us in corn.

Lord BIRMINGHAM (the Chairman) said he was afraid he could hardly congratulate them as agriculturists on having had a very successful or prosperous season. He was aware that in some places the wheat crop had been a good one, perhaps above the average, and good in quality; whereas the oats and barley had been sadly deficient, and the bulbous crops, the turnips especially, had been nearly an entire failure. It might be said the failure or partial failure of the corn crops was not a thing that could seriously affect the prosperity of a county like Cheshire, which was purely a pasturage district; but they must look at this from a wider point of view. When they realised the effects of an indifferent harvest upon our national resources, when they remembered that in some years ten, twenty, or thirty millions of money left this country for the purpose of buying sustenance for their countrymen, then they could not but fail to see that the question of a good or a bad harvest was one that materially affected every county and every part of the country. But though he could not congratulate them upon the whole, he would say that even supposing Cheshire was a county not very materially affected by an indifferent harvest, still, looking at Cheshire as a purely dairy district, the season had not been so prosperous as it might have been. The hay crop had been very deficient, and in many dairies the size of the cheese produced had been sadly diminished by the extraordinary and protracted drought. Though therefore he could not congratulate them upon having had in all respects a successful season, he must congratulate them upon that which after all was a more important subject now, the success of that day's show. He thought that in every department of the show, so far as he was a judge, animals were shown which might have reflected credit on any county show. He had not been long enough in this county to mark the gradual advance of agricultural science; but he had known it long enough to see that in various departments of agriculture the Cheshire farmer was not standing still. He had seen enough to convince him that farmers were draining their land, and employing phosphates and bone manures to restore to the soil those soluble components of which the growth of cereals and other crops deprived it. They were applying, if he might so speak, more of the mechanism of agriculture—implements and machinery were coming into vogue, whereby the work on farms would be cheaper and better done, the drudgery of the farm labourer superseded or done away with, and time, so valuable to us in this uncertain climate, economised and saved. Another subject upon which he would like to say a few words, was the establishment of a Chamber of Agriculture for Cheshire. It seemed almost strange that so important an interest as that of agriculture should have so long been left in these parts without a representative body; for there was hardly any other interest hardly any trade or manufacture, that had not its association to watch over its interests. Now, it seemed to him that there had been a certain want of union among farmers. "Union is strength," as they all knew; and though the want of union might be attributable to grievances in times gone by, let the Cheshire farmers now unite, and let this association be well

backed up by the tenantry of the district, and there was not the slightest doubt in his mind that the combined action of Chambers of Agriculture would do much in protecting the interests of this class of industry. He had no doubt but that they would do much in removing those evils and remedying those abuses of which farmers had complained, and perhaps not without ground, in times gone by. And he believed that the united voices of such Chambers of Agriculture would do much in opposing those bills brought before the Houses of Parliament which they might think to be injurious to their interests, and, on the other hand, in promoting those which they believed to be for their own welfare. He sincerely hoped therefore that the institution to which he alluded would be not only well-regulated, but that it would meet with the support of the farmers of the district and the county. At a local meeting in Cheshire he addressed a few words to those present on the subject of leases, and not very long afterwards a Cheshire landlord remarked to his brother that it was a great pity he had touched upon it, and that he had much better have left it alone. He did not advocate the substitution of leases for the present conditions on which farms were let. What he did say was that where there were large farms with the greater proportion of them arable land, we looked upon leases as almost a *sine qua non*. He had lived upon one of the best-cultivated districts in Great Britain, the Lothians of Scotland, and he had known a tenant of his father's lay out £2,000 in one year upon his land, and the Duke of Argyll said that in the course of 30 years of one tenant's lease the tenant had laid out £9,000. Now they knew the character of Scotchmen. A canny Scot was too cautious to invest £2,000 in one year, or £9,000 in thirty years, unless he had some guarantee for that which was laid out on his landlord's land. He (Lord Binning) made the remark, and would now repeat it, that he looked upon leases as simply a commercial monetary transaction, for which a man received security for the capital to be expended. He did not on the occasion to which he referred, nor did he now, say that he would prefer to see the system introduced into Cheshire to that which now existed. You could lay down no regular conditions under which land should be held or let. He believed the yearly system had hitherto worked well—at all events up to now; and there were in that society with which he had the honour to be connected, many men whose fathers and grandfathers had farmed the land on which they were now, until they had come to look upon it almost as their own, and long might they remain upon it. But one thing was necessary—there must be the most perfect understanding and mutual confidence between landlord and tenant, and if they were to be committed to an agreement, the best one was that which ensured the interests of both; and so far as he had seen, that confidence did exist between the Cheshire farmers and their landlords. Long might it exist, and, in the words of Vivian, he would say:

"Trust me all in all, or not at all;  
Unfaith in aught is want of faith in all."

He could only say that to the owners of the larger farms of arable land he would give a lease under this belief, that if a man could not be trusted with it, he could not be trusted with a large farm.

Mr. B. DUTTON was convinced that the pollution of the streams and rivers of the country by the sewage of towns was spreading disease and death among their stock and people, and there was no question, however much they might talk about it, that they must bring to bear upon those parties who were causing the nuisance the provisions of the Nuisance Removal Act, in the most stringent manner. The streams in this district, through the filth and abominable nuisances poured into them from this town of Crewe, were poisoning the cattle and spreading disease and death among the agricultural population, and if he were the owner or occupier of land through which streams so polluted ran, he would stand up in the face of the opposition of any local board and say that they must keep it where they liked, but they had no right to send it into streams to pollute them. He was glad to find, talking to a gentleman that day, that it was in contemplation to obtain an injunction to prohibit the Crewe local board from sending sewage into the streams, carrying disease and death wherever it went. The streams in many directions were but narrow, became blocked up, the fish were killed, and they had the assurance of more than one occupier in the neighbourhood that the water could not be used even for washing purposes without serious prejudice to health. He talked to one living a short distance from a stream, who said, that during the dry weather, they had to carry every drop of water far from beyond the place where they were accustomed to get it, because that was so polluted. The law was decidedly in their favour, and it was the bounden duty of Crewe, Nantwich, and every large centre of population, to utilize its own sewage, or put it into some form that it might be of practical service; and that could not be done with profit, the nuisance must be suppressed by those creating the nuisance.

Mr. B. BARBOUR'S own impression was, that if the Cheshire farmers would only make cheese of good quality, they would have nothing to fear from America or other countries, but an improvement was required upon the cheese we had lately had, and he was happy to find that there was a general desire on the part of farmers with whom he had conversed, to improve the general quality of cheese. If there could be some institution for the training of dairymaids, he thought it would be the means of improving the mode of manufacture. The inferior cheese he believed came chiefly from the small farms; and there was a tendency at the present time, and he thought it desirable if landlords could do it, to extend rather than diminish the farms of Cheshire.

## AGRICULTURAL AUTHORITIES IN ESSEX.

At the dinner of the Braxted Labourers' Friend Society, Mr. MENCHI was almost going to say that Othello's occupation was more, because, since twenty-five years ago, when he drained his land, put up covered yards, fired a steam engine, and did a great many other insane acts—as they were at that time stated to be—a great change had somehow or other come over the scene, and he was gratified at being able to say that many things for which he was then condemned had become everyday necessities in agriculture. The other day, thanks to the hedges being down, he saw two steam cultivators at work from his dining-room window, and altogether there seemed to be a disposition to throw overboard the old prejudices, and look at things as a matter of practical profit, and of doing what was right. Mr. Round, like a great many other well-intentioned gentlemen and farmers, was apt to say, "We are much obliged to Mr. Mechí for his exertions," although, of course, everyone doubted whether they were profitable. Now the whole question of agricultural improvement was profit: anything that was done in agriculture, any change that was made, that did not place the farmer in a better position than he was before, and

did not give him an increased profit, could not be right. It would not do, therefore, to trifle with the question. Things that were done were either right or not—things, he meant, tested by business principles, which meant a profit on the transaction. It was his fate never to be satisfied with things quite as they were—he always inquired whether further changes could not be made; and he would tell the young men present that before they were 66, and as old as he was, that the changes that would take place between now and that time in agricultural operations would be as surprising as they were great, and at which they, of the older school, if they could re-appear at that time, would be greatly astonished. Both, with regard to landlord and tenant, agriculture, at the present time, was not free. Landlords and landowners had not yet learned the question of making agriculture a commercial transaction, not from any evil disposition, for, he believed, they had as fine a set of landowners in this kingdom as could be found anywhere; but because they were, like themselves, creatures of custom only gradually emerging from the feudal, or a sort of Paterfamilias system. The time, however, would come when the landowners of this

country would treat their land pretty much as they did in towns and cities. In towns and cities the owner of a cabbage-garden adjoining houses did not object to part with it for a consideration, granting leases of it for 80 years, on condition that buildings should be erected upon it, and increased value be given to the property. Concurrently with this they derived a present increased benefit, and in the future a very increased benefit for those would succeed them. In the like manner, landlords, if they could have men of large capital and independent means to farm their land and to improve it, would not object to part with it for a given period, perhaps a long time, on certain conditions to those having the means and disposed to invest it in order to obtain an ultimate largely-increased revenue. Without, however, security of tenure, proper valuation, and so on, they would not be able to get men of capital to invest their money. Everywhere he went he found men with plenty of money disposed to invest it in the soil, but their condition was that they must have it for a given time, and a right to part with it; and he would go so far as to say that the time would come when a man would be by no means tied to his lease, that was to say, that if he did not find it answer he would give it up. They must, in fact, do in the country what they did in towns, they must let the tenant have the power of selling his lease and his interest in it. This he knew was very tender ground; but no man in a city would take the lease of a property to be obliged to say that if circumstances prevented his continuing in it to his own interest he must throw it up to his landlord with the benefit of it. Such a thing would not be tolerated in a town. London was becoming rebuilt, simply because those who had the property for a time knew that it was secure in their hands, and that they had power to transfer it if they thought proper. Then, again, his ideas, as to the amount of capital required in farming were very different to those that generally existed. They used to hear that £10 an acre was sufficient capital to be able to farm profitably, but he believed that the time would come, and that shortly, when nothing less than £20 per acre would be considered sufficient (A VOICE: "It has come.") At the present time not enough stock was kept upon the farms, and he was now speaking of the profitable part of farming. The profit of his farm depended very much upon his keeping and feeding animals with something that did not grow upon his farm. Unless he invested £6 an acre on live stock, and that was not enough, he found that he could not obtain those large crops of corn which were so much required in this country. In the future the question of making a large amount of meat with purchased food would be concurrent with growing large crops of corn. There were other things, too, upon which he and his Essex friends differed, and principally with regard to draining on stiff soils. If there was a weakness in his Essex friends it was that they would not believe it was to their interest that the strong loams round the coast, which this year had produced such large crops, should be drained. That was a very serious and unprofitable mistake. Mr. Mechi exemplified his argument by the present season, and went on to say that agriculture was even now but in a transition state. If they wished to know whether his farm had been profitable he could tell them that it had. There was something humiliating in farmers wanting to persuade their landlords that they were always losing. Nobody believed it. Every one had a right to live by his business, and if they could not they must go out of it and let it pass into the hands of some one else. He believed that the landowners were proud to see men making money. Some, no doubt, took advantage, as owners of property did in towns, but take the majority of landowners he believed that their estates were really underlet, and that if a valuer were called in to apportion the proper value the rents of the tenants would be increased. These landowners, however, men of high dignity and sentiment, had great confidence in their tenants and wished every one to live, but he did dislike to hear people find fault with him and asserting that he was opening the eyes of the landlord. He was opening the eyes of the farmer to be a more business man—to take less land and to put more money on to a smaller space. It was one of the greatest weaknesses this extension of land and diminution of capital, and what he would say was, "Increase your acreable capital, and you will make more interest by it than if you spread it over a large surface." (Applause and disapprobation).

Several gentlemen desired to question Mr. Mechi upon his as-

sertions, as well as also upon the statements of his papers as to his outlay upon his farm and the interest he derived from it.

Mr. MECCHI said they had in their hands his last two balance-sheets containing all the facts that they asked for. Last year, which was a good year for the farmer, he paid 40s. rental per acre to his landlord (himself), and made 18 per cent. upon the capital invested. If he could have put more capital into the land the profit would have been larger. Surely they did not object to his making a good profit; they ought rather to be pleased ("Truth"), and to follow the example he had set them.

Mr. BLOOD hoped the farming discussion (which was beginning to run somewhat high) would not proceed further, but he might perhaps be allowed to state his own experience. He once farmed 60 acres of land of his own, paid no rent, lost £200 by the transaction, spoilt a good bailiff, and he wasn't sure that he did anybody good (much laughter).

Colonel BRISE would remind Mr. Mechi that it was not always that the landlords were so short-sighted as not to know their own interests, and it was a remarkable fact which they might have read of and experienced that gentlemen engaged in manufactures, however long-sighted they might be, when they had made their fortunes were invariably converted into short-sighted landlords (much laughter). There was, however, one subject upon which Mr. Mechi touched, to which he should wish briefly to allude, in order to clear the atmosphere of the misapprehension Mr. Mechi seemed to have that it was the custom of the landlords in this county, whenever a tenant had a lease of a farm and wished to give it up, and get out of the farm, that he was prevented from doing so, and compelled to continue in it, whether he had sufficiency of capital or not. Now he (Colonel Brise) knew something of the farming of this county, and he had never in his life heard of such an instance: he never knew a landlord who refused to permit his tenant to give up his lease or to make any profit of it if he was able to do so, the only condition imposed being that he should place in the farm a respectable, well-conducted, able agriculturist, with sufficient capital to carry on the business. He felt that he must not occupy their time longer, and he will not therefore go into the old question of draining, upon which he had often had an argument with Mr. Mechi. They understood draining their soils in their county as well as any occupier in any other part of the world, and they had done so, he maintained, for the last 50 years or more.

Mr. HALL said: As to Mr. Mechi's theory of drainage, he said he farmed 600 acres of tenacious loam, and he would defy Mr. Mechi or anyone else to say that drainage was a benefit to it. He had tried acre by side of acre and could never see the difference. The explanation of this was that loams would hold a certain amount of water. He admitted that Mr. Mechi grew good crops, but his neighbours grew as good, and he himself would farm against Mr. Mechi for what he liked at the same expense.

**STRAY GRAINS FOR CHICKENS.**—Feed your poultry on raw onions chopped fine, mixed with other food, about twice a week. It is better than a dozen cures for chicken cholera. Fowls exposed to dampness are apt to be troubled with catarrh, which will run to croup, if not attended to. Red pepper mixed with soft feed, feeds several times a week, will remove the cold. Pulverized charcoal, given occasionally, is a preventive of putrid affections, to which fowls are very subject. Setting-hens can be cured by putting water in a vessel to the depth of one inch, putting the hen into it, and covering the top of the vessel for about twenty-four hours. The vessel should be deep enough to allow the fowl to stand up. This is the best remedy I have ever tried. Pulverized chalk administered with soft feed will cure diarrhoea. This disorder is caused by want of variety in the food, or by too much green food. Garlic fed once or twice a week is excellent for colds.

**THE LARDER OF A PROVIDENT FOX.**—The *Pertshire Journal* gives an account of the unearthing of a large litter of young foxes at Grandtully. The den contained thirty white hares, twenty rabbits, eleven grouse, one curlew, one plover, four lambs, one kid, three water-rats, and to crown all one mole! More might be in the cairn, but all the above were laid out and exposed to view, all more or less broken.

## CENTRAL CHAMBER OF AGRICULTURE.

## THE COMING ELECTIONS.

In accordance with a requisition a special meeting of the Council of the Central Chamber of Agriculture was held the last Tuesday in September, to select subjects for discussion by the Chambers; to draw up a manifesto on questions which have been or are likely to be before Parliament; to discuss the policy to be recommended for the Chambers during the Parliamentary elections, and for other purposes. The chair was taken by Mr. C. S. Read, M.P., and there were about thirty gentlemen present, including the representatives of some of the local chambers.

At the commencement of the proceedings it was resolved, on the motion of Mr. T. Chandler, seconded by Mr. Gardner, "That the thanks of the Central Chamber be tendered to Mr. Thomas Willson and the Committee of the Leicestershire Chamber of Agriculture for their able and zealous conduct of the arrangements for the Leicester dinner."

It was also resolved that the reports of the recent Parliamentary Committee on the Malt-tax, of the Committee on County Financial Boards, and of the Committee on Local Taxation in 1880, be sent to all the local chambers, and, further, that a proposal of the Devon Chamber to the effect that facilities should be afforded for members of different chambers attending each other's meetings is worthy of general adoption.

The CHAIRMAN, in advertising to the first notice on the agenda paper, said, in the opinion of the business committee, it was not desirable that the Central Chamber should meet again until the Smithfield week, on account of the elections which were approaching.

On the motion of Mr. Chandler, seconded by Mr. Forde, a resolution in accordance with this view was agreed to.

It was also determined that the selection of subjects for discussion by the provincial chambers should be reserved for the same occasion, and that those chambers should be requested to forward subjects for 1889 to the Secretary previous to the meeting in the Smithfield week.

The CHAIRMAN said they had now come to the real business of that meeting, viz., the consideration of an address or manifesto to be sent forth by the Central Chamber with reference to the elections. Such an address had been prepared roughly by the Secretary, and, with certain alterations, approved by the business committee; and it would now be read to the meeting.

The Secretary (Mr. J. A. Clarke) then read, with the exception of a slight verbal alteration hereafter referred to, as follows:

[The provincial Chambers addressed were described by their localities.]

Gentlemen,—Your attention has been invited to resolutions which have been passed by this Council upon some of the most important questions affecting agricultural interests; and the Council respectfully urge upon you the desirability of giving the widest possible circulation to these resolutions—of ascertaining, if practicable, the sentiments of every Parliamentary candidate thereupon, and of endeavouring to secure the election of representatives favourable to the views of the Chambers.

**I. SAFETY-MARKETS FOR IMPORTED ANIMALS.**—The Central Chamber have repeatedly affirmed the principle that separate seaport markets for the reception, sale, and slaughter of imported animals, with the option of quarantine for store stock, are indispensable, as being the only reasonable safeguard for British herds and flocks against foreign diseases compatible with the fullest supply of meat from both home and foreign sources. The first annual meeting of the Central Chamber, December 12th, 1886, passed a resolution to the effect that the admission of foreign animals should be limited to certain ports provided with separate markets, wherein foreign-meated animals should be slaughtered, and with quarantine-grounds in which foreign store stock should be kept for 28 days before being allowed to move inland. In June, 1887, the Council

issued a form of petition praying for the immediate slaughter or effectual quarantine of all imported animals at the ports of landing without previous intermingling with home-bred animals; this petition being very numerously signed by members of nearly all the provincial chambers, and presented to the House of Commons. At a public meeting of members of the chambers held at Bury St. Edmunds in July, 1887, resolutions in favour of seaport slaughter, or effectual separation of foreign from home-bred animals, were passed, and forwarded to members of the House of Commons, with a circular requesting support for the proposal of a river-side market for the metropolis. In Nov., 1887, the Council passed a resolution demanding water-side markets for the sale and slaughter of imported cattle, and urging the necessity for regulating the importation of sheep. The second annual meeting, December 10th, 1887, hailed with satisfaction the Government Bill for establishing a separate market for the metropolis, but desired that the Bill should include all foreign sheep and pigs as well as cattle, and that the measure should apply to all other ports of landing. In March, 1888, the Council declared their approval of amendments for including foreign sheep in the Foreign Market Bill: they strenuously urged that the regulations for cattle importation should be made general, that a period for the completion of the Metropolitan Market should be fixed by the Bill, and that the foreign market should be held on days different from the Islington market-days. This resolution was embodied in petitions sent up to the House of Commons from every provincial chamber. The Council selected gentlemen who gave evidence before the Select Committee on the Bill; and by petitions, by appeals to members of the House of Commons, and other means of exerting the influence of the chambers, the Council strongly supported the Metropolitan Foreign Cattle Market Bill as a step towards the attainment of security for the farmer's property in live stock without damage to the interests of consumers.

**II. SANITARY REGULATION OF THE HOME TRADE IN ANIMALS.**—Subsequently the benefits which resulted from the regulation of fairs and markets, and internal traffic, for the prevention of cattle-plague, practically demonstrated that by such regulation, embodied in a statutory enactment, the ravages of infectious and contagious diseases might be surprisingly reduced. At the first annual meeting of the Central Chamber, in December, 1886, it was unanimously resolved that the following should be among the legal regulations of the general cattle trade of the kingdom: 1. "The wilful exposure upon any highway, boat, or railway, or in any fair or market, of any animal suffering from such contagious and infectious diseases as rinderpest, pleuro-pneumonia, sheep-pox, scab, or glanders, should be an offence punishable with fine or imprisonment." 2. "Stringent regulations should be made with regard to the expeditious transit and watering of animals conveyed on railways, and a thorough cleansing of all trucks, pens, and laies, and the proper space and ventilation of the holes of cattle-boats should be enforced by Government inspection." 3. "A more stringent inspection of all dead meat should be enforced by Government."

**III. REVISION OF LOCAL TAXATION.**—The Central Council have supported measures for the assessment of property hitherto not rated. In April, 1887, the Council declared their opinion that the assessment for local taxation should be extended as far as possible to other property than that now rated, this resolution following a discussion upon the rating especially of woods, game, and metallic mines. The Council have also taken their stand against the present exemption from poor-rate of incomes arising from personal property. And in order to demonstrate the injustice of levying this and other local burdens upon incomes of the yearly value of £24,000,000, while incomes of the yearly value of £202,000,000 altogether escape, the Council desire that a Parliamentary inquiry should be made into the incidence of both local and imperial taxation upon real and upon personal property. In May, 1888, the

Council passed the following resolutions by a unanimous vote: 1. "That the taxation now levied under the name of 'poor-rate,' to the extent of nearly £10,000,000 annually, bears unfairly upon income arising from real property." 2. "That the exemption from the rate of income arising from personal property is unjust, and therefore requires the early and serious consideration of Parliament." At a further meeting of members of Chambers, held at Leicester in July, 1868, the following resolutions were carried: 1. "This meeting declares that the taxation now levied by local rates bears unfairly upon income arising from real property, and urges that income arising from other sources ought to bear an equitable share of the poor-law charges and other local burdens." 2. "That a committee of the House of Lords, in the year 1856, having decided that the relief of the poor is a national object, towards which every description of property ought to contribute, this meeting recommends the Chambers of Agriculture to support by every means in their power legislation for carrying this principle into effect." 3. "That this meeting calls upon the members of all Chambers of Agriculture to support by every means in their power the Parliamentary candidates who declare themselves in favour of a revision of local taxation."

IV. COUNTY FINANCIAL BOARDS.—The Central Council have passed resolutions to the effect that rate-payers, by their elected representatives, should share in the control of county-rate expenditure, in the adoption of the Highway Act, and in other matters affecting their interests. The evidence of witnesses selected by the Council will be found in the very satisfactory report of the Select Committee of the House of Commons on the County Financial Arrangements.

V. THE MALT-TAX.—In November, 1867, the Central Council, after discussing what steps should be taken with regard to the Malt-tax, resolved to use its best endeavours for obtaining a repeal of the tax. Subsequently the Council selected witnesses who gave valuable evidence before the House of Commons Select Committees, which reported in favour of transferring the impost from the malt-house to the brewery.

On the Turnpike-Trust question the Central Council have passed resolutions on several occasions to the effect that turnpike trusts should be abolished simultaneously, that the consolidated fund should aid in the liquidation of debts, and that no settlement of the question can be satisfactory which is based upon the exclusive rating of real property. On Rural Education and the Employment of Women and Children in Agriculture the Council have passed resolutions warmly sympathising in the efforts for the improved education of the labouring classes, approving the exclusion from field labour of children under nine years of age, but disapproving of compulsory attendance at school, and of charging the outlay for national education upon the rates. The above are the subjects which have occupied the chief attention of the Central Council; but of course there are others, such as "A Government Department for Agriculture," "The Over-preservation of Ground Game," "A System of Compensation for Unexhausted Improvements," &c., requiring early and serious consideration.

The CHAIRMAN observed that, as what was embodied in the address just read was, in fact, merely a repetition of what had been agreed to by the chamber in the form of resolutions, there would not, he apprehended, be any great difference of opinion. It had not been thought desirable to enter into minute details.

Mr. T. WILLSON moved the adoption of the introductory paragraph of the address, the remainder being reserved for subsequent consideration.

Mr. J. RUSSON (Worcestershire), in seconding the motion, said he thought an address of that kind was quite necessary at the present time, when a general election was about to take place. Hitherto the chambers of agriculture had been, comparatively speaking, unrepresented in Parliament, and, having greatly increased of late in numbers and in influence, they ought, in his opinion, to take some definite action in reference to the elections (Hear, hear). He felt sure that he was speaking in perfect accordance with the views of the local chambers. In the Worcestershire Chamber, which he represented, so important was the question considered that it had been discussed on two occasions; but, in the absence of any action on the part of the Central Chamber, and any combination among the provincial chambers, it was thought inexpedient to take any positive step in the matter. If an address were adopted by the Central Chamber, the provincial chambers

would be encouraged to act. In his opinion it was highly desirable to test the opinions of the candidates, and that might be done by means of a series of questions. He perceived that the Sunderland Chamber did not desire to pledge candidates, but merely asked questions, leaving the members of the Chamber to form an opinion from the answers as to the fitness of the candidate to represent them. A strong reason for pursuing such a course was to be found in the fact that so many candidates at the present time put forth similar addresses; and what was contemplated would enable the members to judge as to who were and who were not their friends. He should, therefore, propose that a series of questions be added to the address.

Mr. ABBS (Sunderland) said the first question prepared by the Sunderland Chamber was, whether the candidate would vote for county financial boards, on the principle that there should be no taxation without representation; secondly, whether he would vote for a revision of local taxation; next, whether he would oppose centralisation; then, whether he would oppose compulsory education, and at the same time advocate a measure for assisting voluntary local efforts out of the national funds. As regarded the relations of landlord and tenant, the Chamber thought it desirable not to adopt the term "tenant-right," but the milder phrase of "a revision of the law of landlord and tenant." Some of the questions were answered by Sir Hedworth Williamson, but that gentleman omitted to reply to the question relating to local taxation; while another candidate, Mr. Elliott, returned such answers that the Chamber thought it desirable to give him all the assistance in its power. The Chamber which he represented did not at all wish to become a political society, whether Tory or Radical; but as important measures were likely to be brought forward in the next Parliament, it was, they thought, well to endeavour to ascertain what candidates were most likely to support their views. They had endeavoured to keep as clear as possible of what could be regarded as political or party objects.

Mr. MOORE (Faringdon) said some of the questions which had just been mentioned related to subjects on which the Central Chamber had not yet pronounced any opinion (Hear, hear). He quite concurred in the opinion which had just been expressed that it was desirable for the Chambers to endeavour to secure the election of gentlemen who were in favour of measures which were likely to benefit agriculture. They were, however, composed of men holding different political opinions; and although it was quite proper that after important subjects had been discussed in the local Chambers, the resolutions passed should be submitted to members of Parliament or candidates, care should be taken to prevent the Chambers from becoming political societies. What the Chambers should do at the present time was, without any reference to party considerations, to work together to secure measures which would benefit agriculture (Hear, hear).

Mr. H. G. ANDREWS (honorary secretary of the Somersetshire Chamber) said he felt that, as the Central Council of the local Associations, they had an opportunity before the general election of attempting to elicit from candidates, whether for counties or for boroughs, what were their opinions on certain questions, and thus judging whether or not it was desirable to vote for them. He entirely approved of the address which had been read, but it was his intention to propose as a rider to it certain resolutions, of which he had sent a printed copy to every member of the Central Council, and to the secretary of every local Chamber. He would read the resolution and questions which he had prepared for consideration: "That, without attempting to pledge gentlemen who are candidates for seats in Parliament, or to unduly interfere in elections, this Council submits that the following questions may fairly be asked. Local Chambers may add others at their own discretion, but the important subjects to which these questions refer are before Parliament and the country, and the poor-rate assessment question underlies many others. Questions:—1: Are you disposed to vote for a Foreign Cattle Market Bill well calculated to prevent, as far as possible, the re-introduction of the cattle plague and other contagious diseases? 2: Subject to such exemptions at the bottom of the scale of income as Parliament may determine, are you prepared to support a Bill for the assessment of all income to a common fund for England and Wales for the relief of the poor, and for the other purposes to which the money now raised by the poor-rate assess-

ment is applied, and thereby remove the unfair exemption of income arising from personal property? 3: Will you support a bill for county financial boards, in which the elective principle and representation of the ratepayers is fairly adopted?" As regarded the second question—that relating to the relief of the poor, &c.—it would be observed that it embraced a practical suggestion as to the mode in which the object might be accomplished. On that subject he wished to elicit from candidates for a seat in Parliament a distinct answer as to their views. He did not ask them to pledge themselves to support that particular course; but as an elector, he wished, like many other electors, to ascertain whether the opinions of gentlemen who were candidates were strong enough to influence their votes. In his opinion, and in the opinion, he believed, of almost every one who had carefully considered the subject, the only means of effecting the object in view was the removal of the exemption of personal property—in other words, the adoption of the assessment under the Income-Tax in England and Wales, leaving out Scotland and Ireland. It was not enough for a candidate to say that he would vote for an enquiry into the question; he could only be tested satisfactorily by the question whether he would vote for a particular measure. If that were the only way in which the object could be effected, it was clear that if the candidate did not answer in the affirmative he was against the object. When a great question was before the country, there must be no blinking; and if in this case there was only one remedy, the man who said he had not made up his mind to vote for it must be regarded as an opponent. There had been propositions for enlarging the area of rates, by taxing mines, woods, and game. As regarded mines, everybody knew that there had been a committee endeavouring for the last four years to find out what would be the best mode of rating them, and he did not think they had reported yet. The Chairman would correct him if he were mistaken.

The CHAIRMAN observed that a report had been made.

Mr. ANDREWS continued: At all events the enquiry was not concluded, and practically nothing had been done. If it took four years to find out how to rate mines, how many years would it require to ascertain how to rate woods and game? (Hear, hear). On the other hand, a rate based on the assessment for income-tax levied throughout England and Wales, would reach every man; and the proposition was so simple, that if a man said he could not understand it, that must be because he was trying not to do so. Under schedule D, incomes were returned to the amount of £100,000,000 annually. There were nearly 14,000 persons who returned incomes between £1,000 a-year and £50,000, and not one farthing did any of those incomes pay to poor-rates. Surely such a question as that was worthy of the serious consideration of Parliament. His object in proposing the questions which he had read was not that they should be placed before the local Chambers to be adopted as they stood simply because they had been approved there, but that they might be received as questions to be amended or enlarged as might appear most desirable.

Mr. J. RUSSON (Worcestershire), in seconding Mr. Andrews's proposal, observed that its adoption would convince candidates as well as the agricultural community, that farmers were determined to unite together for their common interest, and to urge their claims upon Parliament in a manner suited to the vast stake which they had in the country.

The CHAIRMAN wished to say a word or two with regard to the position of the question before the meeting. It had been proposed and seconded that the first part of the address should be adopted. Since then an amendment had been moved that the address should be supplemented by a series of questions. Would it not be best first to deal with the address and then with the questions?

Mr. FORD said, in the Warwickshire Chamber, which he represented, it was unanimously resolved on the previous Tuesday that it was desirable to proceed by way of questions. The questions agreed upon were as follows: 1. Will you support a Foreign Cattle Market Bill, with proper provisions to prevent, as far as possible, the reintroduction of the cattle plague and other contagious diseases? 2. Will you support a bill for County Financial Boards, in which the elective principle and representation of the ratepayers are fairly adopted? 3. Are you prepared to support a measure for the extension of the area of rateability to the poor-rate? 4. Are you prepared to support a measure for placing those common charges over

which the guardians of the poor have no control, upon the Consolidated Fund? 5. Are you in favour of a measure for the revision of the licensing system, by which all beer and spirit licences shall be placed under one controlling authority? He agreed with preceding speakers that agriculturists had now a grand opportunity of exercising an influence over those who desired to become their representatives, and he did not think there could be anything wrong in that influence being used for the common good (Hear, hear). He did not wish to see brought into operation the great distinction between Conservatives and Radicals (Hear, hear). They had nothing to do with anything of that kind. They were there to promote the welfare of Agriculture, which in past years had suffered immensely for want of adequate representation; and, indeed, it was evils like those to which he alluded that had called agricultural chambers into existence.

Capt. CRAIGIE (North Riding of Yorkshire) said that question was discussed by his chamber last Saturday, and the result of the deliberation was a unanimous resolution that some questions ought to be put. It was, however, thought that they should be very few in number and as general as possible, and that any attempt to pledge candidates to a particular line of action should be avoided. The question of rating was, it should be remembered, in its infancy. A great many remedies had been proposed. He himself was inclined to support the view of Mr. Andrews; but many of the members of his chamber thought it advisable to leave the question open, putting forward only the unfairness of the exemption of personal property from local taxation (Hear, hear). Several persons thought that, although the poor-rate ought to form a general charge upon the whole property of the country, there are some other local burdens to which that remark would not apply. Instead of the second question read by Mr. Andrews, the chamber adopted the following one: "Are you prepared to support a Parliamentary inquiry as to the unfairness of the exemption from local taxation of incomes arising from personal property?" thereby only asking a candidate to pledge himself to support an inquiry as to the injustice of the present system (Hear, hear).

Mr. G. WHITAKER (Worcestershire) thought there would be great difficulty connected with putting questions to candidates. There were among the candidates both Tories and Whigs who were friends to agriculture, and hence great caution was required; but he could see no harm in pledging candidates to the principle that there should be an alteration in the local burdens, or that there should be some measure which would protect the property of farmers in cattle—property that had suffered to the extent of £4,000,000 through the ravages of cattle disease. Those were matters which were not at all political, and he did not see why they should not be pressed. The question of rating was a most important one. He found that the whole country was assessed, in round numbers, to the amount of something like £330,000,000.

The CHAIRMAN: To the property-tax?

Mr. WHITAKER: Yes; and only about one-half of that amount contributed towards the support of the gaols, lunatic asylums, police, &c. [A voice: "One-third."] Well, under those circumstances, could there be any possible objection to putting some such questions as Mr. Andrews proposed in general terms, wording them, of course, with care? A candidate might very fairly be asked: "Have you any objection to support measures for alleviating the burdens on land, guarding against the introduction of disease by foreign cattle, and establishing county financial boards?" Of course the Council of the Central Chamber could not compel the local chambers to adopt any particular set of questions; but if they were to recommend a series of questions their recommendation would no doubt have considerable weight.

Mr. J. S. GARDINER (Essex) said one objection to the questions proposed by Mr. Andrews was that they did not go far enough. For example, he had entirely left out the repeal of the malt-tax—one of the most important questions connected with agriculture; the impost pressing with special weight upon the counties of Norfolk, Suffolk, Essex, Hertfordshire, and Bedfordshire. So far as his own county was concerned, the Chamber was in favour of the principles involved in Mr. Andrews's questions, and he should like to know whether or not he would consent to introduce the malt-tax.

Mr. ANDREWS replied that he had no objection on principle to include that impost; but he thought it was not desirable to make the questions numerous or long.

The SECRETARY (Mr. J. A. Clarke) said the Chairman had given him permission to say a few words with regard to the address which had been drawn up by the Business Committee. He could not understand why a string of questions should be proposed as riders or additions. The address distinctly urged members of the Chambers to endeavour to ascertain the opinions of candidates on the several questions embodied in it, and how they were to ascertain the opinions of candidates without putting questions or writing letters to them he was at a loss to understand. He believed that the gentlemen to whom the address was to be sent were not such children that they would not be able to put their inquiries into suitable language. He did not like the idea of appending to the address a sort of catechism. Moreover, he happened to know that some of their best friends would strongly oppose the issuing of such questions as were now under consideration. Sir Massey Lopez himself, who introduced the subject of rating so ably in the House of Commons, remarked to him (Mr. Clarke) that the greatest danger which the Chambers could fall into was that of alarming the monied interest, and that he was sure their true policy in regard to the revision of local taxation was to ask in the first instance for an inquiry into the present state of the question.

Mr. C. H. LATTIMORE (Herts) said he had witnessed with great pleasure the formation of that association, because in his opinion it was the first independent association that had ever been formed for the protection and security of the industrial wealth of the tenant-farmers of the country (Hear, hear). Farmers had had their protection societies, as they were called, in bygone days; but never before had there been an association which was free from political bias (Hear, hear). What they wanted as occupiers was, in few words, freedom for their industry, an equitable system of rating, and, lastly, security for their capital invested in the soil. Those seemed to him to be the principal objects of associations like that. He would, however, bear witness—the Chairman would corroborate him in what he was saying—that almost every proposal which came before the House of Commons for the relief of the occupiers of the soil was viewed with considerable prejudice by the commercial representatives (Hear, hear). Such proposals were generally looked upon as an attempt on the part of the landed interest to obtain some advantage at the expense of commerce and manufactures (Hear, hear); and until that kind of prejudice had been allayed, it would be difficult for the Chambers to make any progress in Parliament. As to the proposition before them for sounding candidates, he thought the best course would be to put a few simple questions with the view of seeing how far they were prepared to support certain principles. One gentleman had alluded to the rating of game. He (Mr. Lattimore) would venture to predict that the House of Commons would never sanction any measure having such an object (Hear, hear). Woodlands were property, and in his opinion ought to be rated; but the House of Commons would scout a proposal to rate game as being unreasonable, unfair, and unjust. In order to attain success, the Chambers must take up the solid ground of equity and justice, and put their case before the House of Commons in such a form that no rational assembly could resist or gainsay it. As to the rating of the Funds, if that question were mooted, the result might be a proposal to rate the fixed capital of the land. He hoped that in a few years the capital of the farmer would obtain some sensible relief from the burden of local taxation.

The CHAIRMAN said he hoped the meeting would confine itself to the question before it—namely, whether there should be appended to the address the series of questions prefixed by Mr. Andrews (Hear, hear).

Capt. B. HORSBELL (Swindon) observed that the questions proposed were drawn up in a very mild form, and in his opinion they might fairly be put to gentlemen who sought to represent farmers in Parliament.

Mr. MOORE thought the object of Mr. Andrews himself would be best attained by leaving the address as it stood. He quite concurred in the views expressed by the secretary on that subject.

Sir MORDAUNT WELLS (Peterborough) thought it would be very injudicious to adopt any particular form of questions to be addressed to candidates. He should prefer a general recommendation to the local Chambers, and he would have every member of a Chamber left to take his own course, either alone or in combination with other members. It was not desirable,

however, in his judgment, to go to a staunch supporter hitherto of the agricultural interest in the House of Commons, and say to him, "Here are certain questions; you must swallow all of them, or I won't vote for you." Let him state what he thought should be their action in reference to the elections. There were now scattered through the country Chambers comprising thousands of members, and representing the largest interest in the kingdom. A general election being about to take place, the influence of those Chambers should be felt in it; and it was now proposed that for the first time the agricultural interest, apart from the interest of the landowner, should ask the candidates whether, if elected, they would take into consideration the important questions affecting especially the occupiers of the soil. In dealing with that matter, they would, he thought, do so in a general way, though at the same time in such a way as fully to satisfy themselves whether or not the candidate before them was a man who could be trusted on questions of that kind (Hear, hear). He felt strongly on this subject. He did not consider that because a gentleman was a county member he was necessarily the right man to represent the agricultural body, or one who had its interest very deeply at heart (Hear, hear). Many men went into Parliament with strong party views, and thought more of them than of what concerned agriculture; and what farmers wanted in the House of Commons was a compact body of men, like the hon. gentleman in the chair—(cheers)—who were devoted to the interests of farmers, who would stand together in their defence, quite apart from this or that political party, and who would not, if they could possibly help it, see a measure got rid of in the same way that a certain bill was lately destroyed—by a minority in the House of Commons (Hear, hear). Not till there was such a body of men in the lower House would the interests of Agriculture be properly represented. He knew sufficient of the House of Commons to know that hitherto at certain periods the interests of Agriculture were almost sure to be sacrificed to those of party. He hoped the Chambers of Agriculture would take care that every person who wished to represent them, whether for a county or for a borough, should know and feel that the farmers of this country were determined that their interests should no longer be sacrificed to mere party considerations (Hear, hear). In conclusion, he expressed a hope that Mr. Andrews would withdraw his questions.

Mr. R. STRATTON, jun. (Monmouthshire) observed that if the address were sent to the Chambers without the proposed rider, questions would be asked in different forms, and few perhaps would be so straightforward, or so much to the point, as those before the meeting. If those questions were adopted they would all know what they were about, whereas in the contrary event there would be great uncertainty. Unity was strength, and there could be no strength unless they worked together.

Mr. ANDREWS, in replying, said he was sorry that he could not yield to Sir Mordaunt Wells' appeal to him to withdraw his proposal. Sir Mordaunt himself had clearly shown that hitherto farmers had not been able to trust their representatives in Parliament. If they were going, as a Chamber, to emit that day an uncertain sound on the poor-rate question, what did they expect would be the sound emitted by candidates for the House of Commons after they were elected? Would not that be still more uncertain? (Hear, hear). That question and others ought to be brought forward and pressed home before the election, and not reserved till it was over.

The CHAIRMAN said he had no wish to bring this question to an untimely end, but he really thought they had discussed it long enough now to take a vote upon it. He would, however, first express his own opinion, though he did not desire to bias any one else. He felt the greatest possible objection to a set of questions. He did not wish to say anything at all disrespectful towards Mr. Andrews in connexion with the questions which he had proposed, but he must say he should be very sorry to have a question like No. 2 in the series put to himself. In the first place, the question involved had not been discussed by the Central Chamber at all (Hear, hear); the question of having an income-tax assessment had never been decided or even discussed there. They were on that occasion simply asked, as a Chamber, to record what had been done, and they could not then take upon themselves to determine a question of such importance when no notice of it had been given. He thought it would be very detrimental to the cause



of the Chambers of Agriculture to put forward a string of questions to candidates which—to put his own case—the Vice-Chairman of the Central Chamber could not, or would not, answer entirely in the affirmative (Hear, hear). It would, he believed, be far better to leave the District Chambers to frame questions in whatever shape they liked best. If they were to adopt questions on that occasion, it would take a very long time to settle the precise form they should assume. He should be sorry to see the malt-tax left out. Why should they have some questions and omit others? He was glad that there had been no timidity or squeamishness about taking political action (cheers). They had been told sometimes that they had no right to take political action, but he maintained that if the Chambers of Agriculture lost that opportunity they must be worse than useless (Hear, hear).

Mr. ALBERT PELL considered it very undesirable to have one stereotyped set of questions for the whole country.

After a desultory conversation, the first part of the address was, as had been proposed, adopted unanimously.

Mr. Andrews's questions were then submitted as a rider and negated, the numbers being—for the rider, 6; against it, 15.

The meeting being about to consider the portions of the address following the opening paragraph,

Mr. RUSSON inquired whether it was open to him to propose a different series of questions from those just rejected.

Sir M. WELLS objected to such a course, on the ground that the meeting had already virtually pronounced an opinion adverse to the adoption of any questions.

Mr. ANDREWS took a different view, observing that the objections urged applied chiefly to the question relating to local taxation.

Mr. BURBERRY (Warwickshire) thought it clear that the majority were in favour of leaving the Chamber to carry out the object of the address in whatever manner they might deem best (Hear, hear).

Capt. CRAIGIE said he had voted under the impression that what was objected to was simply Mr. Andrews's questions. As regarded rating he believed that what the Council desired was, not that candidates should pledge themselves to a particular settlement of the question, but that the stone should be set rolling. It was not sufficient, however, for the Council to express its sense of the unfairness of the present system, and in his opinion they would not be acting unwisely as the Central Chamber in embodying that view in a question.

The CHAIRMAN observed that if any gentleman wished a string of questions to be appended to the address, he had only to propose them, and he would submit them to the meeting.

Mr. LATTIMORE said he had supposed that there was a general understanding that every local chamber was to be left to carry out the leading idea of the Central Chamber in its own way.

Mr. A. PELL said, in order to bring the question to a practical issue, he would move that it was not desirable that the Central Chamber should issue any form of questions to be addressed to parliamentary candidates. It had been remarked that questions might be put mildly; but, however mild might be their form, it might be asked: "What right have you to put them?" He thought it would only weaken the address to send a stereotyped set of questions all over the kingdom (Hear, hear).

Mr. RUSSON said, after the decisive vote already come to, he would not press the matter.

The CHAIRMAN observed that the local chambers were to be asked to ascertain the views of candidates, and that could not be done without putting questions.

Mr. Pell's motion was then withdrawn, and the meeting proceeded to consider the special subjects dealt with in the address seriatim.

On the paragraph relating to the relations of landlord and tenant being again read,

Sir MORDAUNT WELLS objected to the phrase "tenant-right," which was used in the address as first submitted, observing that he felt as strongly as any one in favour of the real object; but that that particular expression might cause their object to be confounded with what was advocated under the name "tenant-right" in Ireland—a mistake which should he thought be carefully avoided.

The CHAIRMAN, by way of amendment, suggested the use of the words "recognised custom of tenant-right," adding that every one knew that what they meant was not the Irish tenant-right, but such tenant-right as existed in Leicestershire.

Sir M. WELLS suggested the words "the existing law of landlord and tenant."

Mr. LATTIMORE did not see why the expression "tenant-right" should be objected to (Hear, hear). What farmers wanted was security for improvements which were unexhausted at the end of a tenancy; so that if the landlord wanted more than belongs to him he would not be able to obtain it.

Mr. ABBS remarked that in the discussion of this subject in the Sunderland Chamber it was urged that of late years capital had flown more readily into manufacturing than into farming pursuits, and this was attributed to the impediments arising from the existing relations of landlord and tenant. A landlord might generally dismiss a tenant with only six months' notice, and in that case the tenant would not be able to get back one-half or perhaps one-quarter of his capital invested in the soil.

Sir M. WELLS deprecated the passing of any resolution which might tend to create an antagonism between landlord and tenant. Everybody who knew him must feel that he was very strongly with tenants; but he hoped nothing would be done that might lead persons to say that the Chamber was acting wildly, or pledging itself to what it could not carry out.

Mr. FORD did not see why they should avoid the ordinary term "tenant-right," and moved that it be retained.

Mr. WILLSON seconded the motion.

Sir M. WELLS moved, as an amendment, that it be not retained.

Capt. CRAIGIE, having seconded the amendment,

The CHAIRMAN suggested, by way of compromise, the substitution in lieu of the words "an equitable system of tenant-right," the following—"a system of compensation for unexhausted improvements," which he said would show everybody what they meant, and at the same time make it clear that they did not mean what was called "tenant-right" in Ireland.

Mr. GARDINER (Kent) supported the original motion.

Sir M. WELLS adopted the alteration suggested by the Chairman, and the result of a show of hands was that it was embodied in the address, the numbers being, for Mr. Forde's motion 11, for Sir M. Wells's amendment as modified 11.

The address, as thus amended, having been adopted in the form in which it appears at the commencement of this report, on the motion of Mr. A. Pell, it was resolved, "That 4,000 copies of the address be printed, and that 25 copies be forwarded to each Chamber or branch Chamber, and two copies to each member of the Central Chamber, with a notification of the terms on which further copies will be supplied."

On the motion of Mr. BYRON, seconded by Mr. Hodgson, it was further resolved: "That the Secretary be instructed to request the co-operation of the provincial Chambers in giving the widest possible circulation to the address, by placing it in the hands of every member of the Chamber and of every parliamentary candidate."

Mr. ANDREWS moved the following resolution: "That this Council recommends a systematic organisation of county Chambers of Agriculture and Ratepayers' Associations on the principle so successfully carried out in Somersetshire." He said he put a notice of this motion on the agenda paper a twelve-month ago, and had repeatedly renewed it; but, from one cause or other, it had always been postponed. He felt that unless the Chambers struck deep root downwards in the counties generally, so as to reach almost every parish, the Central Chamber could never become a powerful body. He thought that every county should have a complete organisation of its own, and that, generally speaking, there should be but one Chamber for each county. Every one who had had anything to do with the formation of local associations must be aware that for want of a sufficient area of combination there was often great difficulty in raising money enough to make an association efficient or permanent; whereas upon the plan which he advocated funds would be obtained from the whole county, and the Chamber would be strengthened. In his own county there were seventeen local divisions, and under that arrangement anything that was received from the Central Chamber was transmitted to every parish. Such a system was very convenient as regarded postage. If the Central Chamber was to have that weight, either in the House of Commons or out of it, which was desirable, some means must, in his opinion, be adopted greatly to enlarge and strengthen the organisation in the counties.

Mr. STRATTON seconded the resolution.

Sir M. WELLS thought it would be impossible to carry out Mr. Andrews's plan all over the country. For example, the Peterborough Chamber, which he represented on that occasion, consisted of 300 members, who came from four different counties, Peterborough being near the borders of Lincolnshire, Northamptonshire, Huntingdonshire, and Cambridgeshire. It was a very influential Chamber, and many of the members could not attend meetings at Northampton, or any other county town. Peterborough market was the great market of the district, and the members of the Chamber had combined together because they knew each other. It was impossible to govern one county by the rule or system of another. They must take a practical view of such a matter, including the position of the great body of agriculturists, railroads, and so on, and leave those who resided in the district to do what was best for their own convenience. There was no body of men whose convenience so much required to be studied as that of farmers, seeing that they were compelled to be near the spot where their business was carried on. At present there was a large organisation in almost every county, and they were justly proud of it; but if it were split up into mere local bodies all influence would be lost. It would be far the best to leave the matter as it stood. The Chambers were working well—in his opinion they were working wonders (Hear, hear); and although Mr. Andrews's plan operated very beneficially in his own county, it did not follow that it would do elsewhere.

Mr. GARDINER (Kent) opposed the resolution on the ground that it was desirable that everything should be done through the Chambers.

Mr. ANDREWS explained that he did not desire to do away with any existing chambers. What fell from Sir M. Wells seemed to him in favour of his view. It appeared that there was one Chamber for four counties: in his opinion there should be one for each.

Sir M. WELLS observed that there was a Chamber for Northamptonshire and another—a very important one—for Lincolnshire.

Mr. ANDREWS said he would ask what county there was where the principal county business did not centre in the county town?

Mr. MOORE remarked that there could be no doubt that the Chambers of Agriculture were making great way in the country, and that it would be best to leave them to the natural increment.

Mr. ABBS agreed with Mr. Andrews that it was desirable

that the whole body of agriculturists in each county should be got, if possible, to support the Chambers of the district.

Mr. HODSOLL (West Kent) said that in his county, which was very large, it was found necessary to have two Chambers; and in all cases of that kind it must be left to those who lived in the district to determine how the object could be secured most effectually.

Captain CRAIGIE wished, as the representative of one of the largest Chambers, that of the North Riding, numbering about 1,000 members, to state that they had a local Chamber for several market towns—Scarborough, Whitby, &c.; but there was one Chamber for the Riding, in which all the local ones were united. In that way they had something like the Somersetshire system. Sub-division was not, however, carried out as regarded all the parishes; and he thought that when they had divided a county into market districts, they had done all that could be done with advantage (Hear, hear). They must all feel that the greatest praise was due to Mr. Andrews for the energy which he had displayed in Somersetshire (cheers); but he did not think there could be one rule for all counties.

Mr. WHITAKER said it should be remembered that agricultural chambers were new organisations, and were, moreover, a success (Hear, hear). He thought it would be very injudicious in the Council to recommend a change of system without grave consideration. Although farmers were generally very lethargic, when they saw the principal farmers of their district working together zealously, they would join them by degrees.

Mr. ANDREWS, yielding to the apparent wish of the meeting generally, then intimated his willingness to accept the following amendment in lieu of his own proposal: "This Council would direct the attention of provincial Chambers to the admirable system of county organisation adopted in Somersetshire, which may be applicable in some other parts of the kingdom; and, for the purpose of securing the fullest possible expression of opinion upon any important question affecting agricultural interests, the Secretary is hereby requested to form a list of 'correspondents' in every poor-law union not already organised, who will assist in distributing information and eliciting the views of agriculturists in their respective districts."

After a few remarks from the Chairman on the wisdom of the course thus pursued by Mr. Andrews, the amendment was adopted as an original motion.

The proceedings, which occupied from eleven till a quarter-past two, terminated with a vote of thanks to the Chairman.

## LOCAL TAXATION.

At a meeting of the Shropshire Chamber of Agriculture held at Newport, Mr. JASPER MORE, M.P., read the following paper: When Chambers of Agriculture were first established subjects were discussed, which one may call easy subjects, such as: The repeal of the Malt-Tax, the abolition of Turnpike-tolls, and Education of Labourers' Children—not easy subjects for legislation, as I who have been a member of the select committee appointed to report on the two former questions have reason to know, but easy subjects to speak about, because members of our Chamber have had every opportunity of considering them, and were of all men most conversant with them, because of all men most oppressed by them. The discussion of chambers of agriculture were at first open to the charge of being unpractical, because we discussed well-worn subjects. We, however, thought most at first of widening our connection and improving our machinery, and now with a Chamber in a very important county and in separate divisions of some counties, we can afford to take up newer and freely discuss more vital questions, more opportunistly than we could at first, because we believe that the opinions of 12,000 of the leading resident ratepayers of the county to which our numbers have swollen must carry weight. We have accordingly to-day to consider the subjects of local taxation and the representation of ratepayers as assessors of the magistrates in the management of the county business, by means of county financial boards, which will be introduced by Mr. Minor. Mr. Minor and Mr. Davies, of Patten, were amongst those on

the strength of whose evidence the committee passed a report in favour of this change in the administration of counties, which exceeded in favour of the introduction of representative principle the expectations of the most sanguine. I allude to this first, not because I have always from the first establishment of these Chambers, as many of my friends know, thought this question not only the most important for the Chambers to take up, but the one they are most likely to succeed with in the House of Commons, but because I believe it to be a sound constitutional principle that an accession of strength to the governing body, or of those enabled to take a direct interest in Government, local or national, is the precursor of administrative and financial reform. Therefore, if we are to consider a reform of local taxation, I rejoice to find the introduction of representation in spending the funds joined with it. I will also add here that if the incomes of professional and mercantile men are ever rated to the relief of the poor and county rates, as will the incomes derived from real property, which is the subject we have now to consider, an important consideration is that the administration of these rates will gain from the accession of intelligence and business-like views of those who will then pay for them; and if these fortunate holders of personal property should feel aggrieved by having to pay rates with other men, we may offer some consolation to some of them by giving them a seat in the County Financial Board, and, thereby, the social position of a semi-magisterial capacity, none the less honourable because elective,

It is not my intention to occupy your time by going into the archaeology of this question. Our attention should be directed to the present and future rather than the past. If I were to attempt to give the early history of rating, we should have to adopt the course the Norfolk Chamber did very lately, when they appointed a very able lawyer to read a paper on the subject, who accordingly drew one up at such length as to require another day for the real discussion. I will take you back no further at first than the beginning of this year, when Mr. H. G. Andrews, who has established "an association" in the county of Somerset, for the removal of the present unfair exemption from poor-rate of incomes arising from personal property, brought forward the question of the rating of personal property with great ability before the Central Chamber of Agriculture; and Sir George Jenkinson brought the same subject before the Central Farmers' Club. The Central Chamber assented to his views without apparently there being any dissentient but myself, the chairman; and I dissented from carrying his motion then only because I thought it might be more becoming to adjourn the discussion before we pronounced so decided an opinion on so great a question, and before any argument against it had been adduced. Sir Massey Lopes then, in a speech of great ability, introduced the same subject in the House of Commons, and he was received in the same way that all private members who bring forward important motions on financial questions are received by the Government of the day: he was complimented on his speech, and asked to withdraw his motion, which he accordingly did, and naturally so; for the Government of the day will allow no private member to carry an important measure affecting finance; for if a measure of importance is to be carried it must be by the Government, who have such superior means of information to any private member. If a private member, therefore, brings forward any important question in the house he does it only with one of two motives, either to try to induce the Government of the day to take it up, or for the purpose of making a speech to show his constituents that he is alive. Mr. Corrance afterwards proposed to refer the subject of Sir Massey Lopes' motion to a select committee. I have never had much belief in select committees on agricultural subjects, leading to legislation. I made this remark before the Central Chamber of Agriculture at the beginning of the Session when the metropolitan cattle market bill was referred to a select committee; and I regret to think my prediction that that reference to a committee would be fatal to the measure has been too truly verified. I feared we might waste a year in taking evidence on local taxation, as two have been wasted in taking evidence on the malt-tax; and I suggested therefore, on Mr. Corrance's motion, that that part—as much as I thought the public would read of a report of a former committee of the Lords—should be first reprinted. This was acceded to by the Government; and Sir Matthew Lopes, Mr. Read, and others interested in local taxation (with the Secretary of the Poor-law Board), agreed to my selection of evidence, which is now reprinted by order of the House, and is to be bought at Messrs. Hansard's, Great Queen-street, London, for 1s. 2d.; and which I earnestly recommend to the careful attention of all who wish to take an impartial view of the question of rating. Local taxes are taxes imposed for the public good within certain districts, expended within the same districts on which they are levied, and for the special benefit of these districts. The report of the Poor-law Commissioners on local taxation, published in 1844, and occupying 360 pages, states there were 24 of these, viz., ten cases on the basis of poor-rate; six miscellaneous cases, each on an independent basis; and eight of a county-rate series, imposed originally by some general authority, but ultimately assesses on the basis of the poor-rate. These rates were made by distinct statutes with different sets of officers to collect them, and on dissimilar assessments. Since 1739, when the consolidation of county taxes took place, it has been the custom to charge new expenses on some existing rate, instead of creating a new rate for the occasion. The tendency of opinion now is to have one rate only for all purposes, and the opinion of the Chambers of Agriculture is to charge this rate on all kinds of property, or, in other words, to have a national rate. This is a point with respect to which Sir George Lewis said the old proverb is particularly applicable, "*Qui ad paucos respiciunt, facile pronunciant.*" Those who look at only a few considerations, easily pronounce an opinion. I invite your attention to a few con-

siderations, first, to those which favour this view; second, those which exhibit the practical difficulties in its execution. Into the history of the county rate and poor rate it is not my intention to enter; but, as the poor rate assessment is made so general a basis of local taxation, to consider the incidence of that rate. (1) The Sixth conclusion of the Report of the Lords' Committee on Parochial Assessments is that the relief of the poor is a national object, towards which every description of property might justly be called on to contribute, and that the Act of 43 Eliz., c. 2, contemplated such contribution according to "the ability of every inhabitant." This raises the question of the rating of personal property. Lord Malmesbury, in his letter laid before the Lords' Committee, says, "The virtue of the law of Elizabeth admitted, it must be difficult for a man to affirm that any peculiar description of property shall by any vested and inherent privilege be exempt from paying its proportionate quota to the maintenance of the poor." Sir G. Lewis, in evidence, is asked his opinion on that statement, and he says he is ready to admit that unless it can be shown that there are some special causes in favour of a local tax, charged on real property, the presumption is in favour of making it a national charge and on all kinds of property. He says it is incumbent on those who maintain that a tax should be a local burden on real property to prove their case, to show that it is an exception to the rule. He gives two instances of exceptions to the general rule that it is better to make a local burden a national one. First, that of tolls, which were devised instead of the old highway rates which existed before the time of Charles II., as a means of shifting the burden from real property upon those who used them, i.e., on all kinds of property. In this case the cost of collection, and the annoyance is such that we know many counties, and also in Shropshire some districts, have been glad to abolish their tolls and revert to the old system of maintaining the roads. Second, the octroi duty of France. This is a tax on consumers, levied at the gates of towns on all articles of consumption. So long ago as the year 1836 there were ten millions of these stoppages and examinations in Paris alone, and with the same system as other towns an amount of vexation is caused in France which is simply unbearable. Secondly, the apparent injustice of such a rate as the present rate is seen from a comparison of the income on which the poor rate is assessed with the income of the country. I will take 1865, the year which Mr. Startin, of Coventry, has used to illustrate his view of the unjust incidence of the poor rate. In 1865, the sum of income assessed is by the Tenth Report of the Board of Inland Revenue placed at £326,367,979. By the Nineteenth Report of the Poor Law Board, the gross estimated rental of the property on which the poor rate is assessed is £110,079,308. The poor rate is, therefore, a charge on only a little over 33 per cent. of the incomes above £100, or £2 out of every £3 escapes the poor rate. The rateable value upon which the poor rate was levied in 1866 was £93,636,405. Professor Leone Levi has arrived at the conclusion that the earnings of workers is £418,000,000. Apportioning this to the population, the income in England and Wales below the income tax is about £318,000,000. Adding this to the income tax assessment, we have £844,000,000 as the aggregate of the income in England and Wales three years ago. Placing this as low as £600,000,000, we find that the poor rate is a tax on only 18 per cent. of the incomes of England and Wales, or more than £4 out of every £5 escape. If every inhabitant contributed according to his ability, a uniform rate of 4d. in the pound would have paid what in 1865-6 was a rate 2s. 0½d. on real property. Thirdly, the hardship of the poor-rate is brought home to us by the case of some very rich man, like Mr. Crawshaw, or the Marquis of Bute, or Lord Dudley, who own many millions which entirely escape rate. (2) Now we have to consider whether there is any special reason which, in the case of the poor-rate, should render it inadvisable to make it a national charge. There is and it is this:—The advantage of local management may be greater than the evil of the incidence of a local tax on real property. If all grants came from the Treasury all parishes would vie with one another to get as large a grant as they could, all classes would be interested in obtaining as much of it as possible, e. g., shopkeepers would apply for it for their poor customers, landlords for their poor tenants. This would end in imposing on the inhabitants a greater sum in national taxation than they now pay in poor rates. But further:—The Act of Elizabeth being held to as-

thorize the rating of all personal property, it is the fact in practice that not only has it never generally been rated, but that nearly all sorts of personal property have been expressly excluded from rating. The courts, in constructing this Act, have determined that property to be rated must be local, situate within the parish, that it must be visible, and that it must be productive. These limitations exclude, first, all furniture, because it is not productive; secondly, all money, because it is not visible, generally not situate in the parish; but in Scotland the feeling was still in favour of rating "means and substance," i. e., personal property. The way they arrived at the amount was this; some one in the parish put an arbitrary value on a man's personal property, and left the person rated to declare that was not the true value. That was the inquisitorial mode of carrying out the law. The law was altered in 1846, and the parochial boards were allowed the option of three modes of rating; the first was on real property, the second and third on means and substance. Now, in Scotland, there was both a feeling in favour of rating means and substance, i. e., personal property and the long-established custom of law in its favour, and yet by a return issued in 1849, five years after the change in the law, out of 625 assessed parishes 499 voluntarily had repudiated the rating of means and substances, and only 74 assessments had been adopted according to the old law of rating means and substance. Therefore this practical experience of Scotland has well to be considered before we offer a decisive opinion on the advisability of trying to rate personal property here. The liability of inhabitants to be rated for personal property was not mooted in the Courts till a century-and-a-half after the Act of Elizabeth. Lord Mansfield in "the King v. Andover," 1777, controverted the liability of personal property to be rated, denied that it ever had been rated, and anticipated all the difficulties that have since been found in attempts to rate it. Lord Kenyon decided that it was rateable. Before this in 1706 three judges had given their unanimous decision that a farmer's stock-in-trade was not rateable, but that a tradesman's was, Chief Justice Holt entirely differing with them. If stock-in-trade was to be held rateable again we may be quite sure agricultural stock-in-trade would be rated. Other stock-in-trade is generally in town parishes. The agricultural interest would be sure to be losers by the rating of stock-in-trade, the only gainers would be inhabitants of town houses, bankers, lawyers, and tithe owners. Lastly let us consider Lord Malmesbury's plan of a substitute for the poor rate, on which the Lords' committee of 1850 state that they "are not prepared without further inquiry to offer any opinion." He proposes to take the average expenditure of the last five years, and give from additional national taxation this sum for the ten, and if this sum is exceeded then that the sum received should be supplemented by a rate in aid, as at present, on the real property of the parish. The first consideration is that if this system were national it would have to be applied to the three kingdoms, and would necessitate a complete and most expensive revision of the poor laws of Ireland and Scotland. Whether it would be politic or whether it would be possible to assimilate the poor law as well as the income tax of the three kingdoms, is not a matter easy to determine. Shall I offer an opinion on what seems to me the most politic matter of setting to work to relieve the rates? It is to be done, I think, in two ways. First, by insisting on the rating of all real property not rated already and which undoubtedly ought to be rated, as mines (other than coal mines), timber, and game. Mr. Read and I have introduced a Bill for the rating of the two latter. Second, by applying for increased grants from the Exchequer for some of the charges that at present fall on the rates, and try for the exemption of some altogether from a charge on poor and county rates. First, there is the militia rate. This most certainly ought, in my opinion, to be paid by the War Office. It is said that all rates are really paid by the owner, because the owner has them deducted from his rent by the occupier. If the militia were called out, all this extra expense would fall exclusively and really on the occupier. Second, the questions of whether there ought not to be a State care and charge for all lunatics, and the question whether a better police might not be with advantage placed under a central authority and paid from the Exchequer, should be brought forward in the House of Commons, and each fully argued on their merits. Mr. D'Israeli proposed that from March 5, 1850, the establishment charges

for the relief of the poor should be defrayed out of the general revenue of the State. Sir C. Wood, in 1851, sought to apply revenue raised by the general taxation of the country towards the maintenance of pauper lunatics. My recommendations, therefore, are to consolidate all rates into one general rate conformable in its incidence to the poor-rate. To extend the incidence of this rate as far as possible, but first to rate mines, woods, and game. To relieve this general rate as much as possible of the charges that at present fall upon it, by throwing one at least, the charge for the militia, on the general revenue of the country, and by larger grants from the Treasury in aid of other charges. The question as to making charges for police and lunatics national charges, should each be raised on their own merits. A discussion in Parliament on making each a national charge, would narrow a discussion on rating to a distinct issue, and might result at all events in increased grants from Government in aid of these charges. In 1847 the levy for poor-rate was £10,303,000. Of this about two-thirds were spent on the relief of the poor, and one-third went for other purposes. The whole receipts in aid from Government were only £388,000. Two points remain for me very briefly to touch upon, and I do so for the purpose of inviting opinion on them, one or both of which some of you have perhaps considered before. The one is this: if the ratepayers have their due representation in the expenditure of county funds, as we hope and expect they soon will have, and if this results in the reduction of rates by any of the methods I have suggested, it will be competent for us, as has been done before, to apply some of the county funds to new purposes. Now, at the end of the last Session there were close divisions on a proposed application of county funds to a new purpose, but one which need not have imposed upon them the expense of more than £100 or £200. It may appear a delicate subject to mention, but it is the expense of hustings at Parliamentary elections. The saving to the candidate and the expense to the county would be so small as not to be worth taking into consideration. The object of the proposal was this: It is said that farmers are for the most part never really in earnest unless their pockets are touched; so it was hoped by the most infinitesimal touch of the pocket to give them a gentle stimulus to take more pains throughout England to see that their agricultural interests, and not the interests of particular families, are advanced by county representation. I will merely remark that both the Conservative members who introduced motions relating to rating in the past Session voted for this proposal whether then it will be desirable, as likely to affect and improve the representation of counties, by an infusion of new interest taken in it, is worth consideration. Lastly, one result of the change which Mr. Minor is going to introduce to you will be, in my opinion, to advance the tendency large counties are beginning to show to have a distinct Quarter Sessions for each division. Would this be desirable for Shropshire? I venture to think it would. The southern division from its proximity to Wales, and the northern division from its neighbourhood to Cheshire, have such marked and distinguishing characteristics as to make Shropshire, in my opinion, eminently divisible for rating purposes. Into the details of a division for administrative purposes I will not enter. Whether, if it were proposed, the northern division would build us a handsome Court at Stretton, Bridgnorth, or Ludlow, in remembrance of our services to them during the cattle plague, or whether the magistrates and their ratepaying assessors might occupy two courts of the same building for the transaction of country business at the same time, I will not venture to suggest, I merely mention it for the purpose of ventilating the question. In conclusion I beg you to remember that I have introduced this subject to-day to avoid a stranger being asked to do it, and because no one yet has volunteered to do so. I have been much engaged lately, and my time has been fully occupied with other subjects pressing on my attention. If, therefore, you detect errors in anything I have said, I shall be obliged to you kindly to correct them, but otherwise I do not deprecate criticism.

Mr. S. MINOR proposed a resolution to the effect that the representation of the ratepayers ought to accompany county taxation, the ratepayers being associated with magistrates in county financial boards.

Mr. JASPER MORE said he had omitted to mention Lord Malmesbury's plan of a substitute for the poor rate. That

nobleman proposed to take the average expenditure of the last five years, and give from additional national taxation this sum for ten years prospectively, and if this sum was exceeded, then that the sum should be supplemented by a rate in aid, as at present, on the real property of the parish.

Mr. J. MILES seconded the motion. With reference to the subject of local taxation, he was in favour of raising the amount required for the relief of the poor in the same manner as the income tax was at present levied. He trusted that the re-

formed House of Commons would deal with this question in a spirit of justice to all parties.

Mr. J. E. WICKSTEAD was of opinion that Mr. Jasper More's resolution was of too general a nature, and moved a rider to the effect that the incomes arising from real and personal estate ought to be assessed to all local rates.

Mr. Jasper More's motion with this rider was unanimously agreed to, as was also Mr. Minor's resolution in favour of the establishment of county financial boards.

## WORCESTERSHIRE AGRICULTURAL SOCIETY.

At the twenty-seventh annual exhibition of the Worcester-shire Agricultural Society held in Worcester, the Herefords were, on the whole, a good class, and comprised several superior animals; and the first prize of two-year-old heifers was taken by Mr. Prosser's pair, which were very fine animals. There were four entries of shorthorn bulls. The sheep altogether formed an excellent show, both in regard to quality and quantity. There was a better show of Leicesters than at Warwick. In the class of Shropshire sheep Mr. Keeling took first prize for breeding ewes.

The following were the judges—*Cattle*: Mr. T. Duckham, Baysham Court, Ross, and Mr. J. Topham, Welford, Northamptonshire. *Sheep and Pigs*: Mr. T. Horley, jun., The Fosse, Leamington, and Mr. H. Chapman, Upton, Atherton. *Horses*: Mr. Potter, Witton, Birmingham, Mr. J. Tustin, Worcester, and Mr. J. S. Walker, Knightwick, Worcester.

### P R I Z E S .

#### HEREFORDS.

Bull, two years old and upwards, £10, Mr. E. Morris; second, £2 (or silver medal), Mr. J. H. Powell, Lulsley; third, £1, Mr. T. Allies, Bromyard.

Yearling bull, £10 (or silver cup), Mr. J. Prosser, Honeybourne; second, £2 (or silver medal), Mr. E. T. Goldingham.

Cow, in milk or in-calf, £5, Mr. H. Griffiths, Weobley; second, £2 (or medal), Mr. J. Prosser; third, £1, Mr. J. Fountain Hall, Ripple.

Pair of two-year-old heifers, in milk or in-calf, £10 (or silver cup), Mr. J. Prosser; second, £2 (or medal), Mr. J. F. Hall; third, £1, Mr. E. T. Goldingham.

Two-year-old heifer, in milk or in-calf, £5, Mr. B. Prosser, Hindlip.

Yearling heifer, £3, Mr. E. T. Goldingham; second, £1 10s., Mr. J. S. Walker, Knightwick.

#### SHORTHORNS.

Bull, two years old and upwards, £10, Mr. H. Allsopp, Hindlip Hall; second, £2 (or medal), Mr. Joseph Woodward, Birmingham; third, £1, Mr. E. B. Guest, Broadwas.

Bull, above one year old and under two, £10 (or silver cup), Mr. J. Lynn, Grantham; second, £2 (or medal), Mr. T. G. Curtler, Worcester.

Cow, in milk or in calf, £5, Mr. T. G. Curtler; second, £2 (or medal), Mr. Jas. Webb, Fladbury; third, £1, Mr. T. G. Curtler; commended, Mr. Jas. Webb.

Pair of two-year-old heifers, in milk or in calf, £10 (or silver cup), Mr. T. G. Curtler; second, £2 (or medal), Mr. Jas. Webb; third, £1, Mr. T. G. Curtler.

Two-year-old heifer, in milk or in calf, £5, Mr. J. Lynn.

Pair of yearling heifers, £5 (or silver cup), Mr. T. G. Curtler; second, £2 (or medal), Mr. T. G. Curtler; third, £1, Mr. Jas. Webb.

Yearling heifer, £3, Mr. Jas. Webb.

#### FAT STEERS AND COWS.

Five fat steers of any breed, grass-fed, £5 (or silver cup), Mr. G. Essex, Leigh.

Five cows or heifers of any breed, grass-fed, £5 (or medal), Mr. B. Hickman, Cotheridge.

### SHEEP.

#### LEICESTERS.

Five breeding ewes, having had lambs in 1868 and suckled them up to June 1st, £3, Mr. T. G. Curtler; 2nd, £2, Mr. Thos. Harris, Bromsgrove; 3rd, £1, Mr. T. G. Curtler.

Five theaves, £3, Mr. T. G. Curtler; 2nd, £2, Mr. Thos. Harris; 3rd, £1, Mr. T. G. Curtler.

Five ewe lambs, £3, Mr. Thomas Harris; 2nd, £2, Mr. T. Harris; 3rd, £1, Mr. T. G. Curtler.

Shearling ram, £5, Mr. Thomas Harris; ram of any age, £3, Mr. Thomas Harris; 2nd, £1, Mr. T. G. Curtler.

#### LONG-WOOLLED, NOT BEING LEICESTERS.

Five breeding ewes, having had lambs in 1868 and suckled them up to June 1st, £3, Mr. Jas. Webb; 2nd, £2, Mr. Joseph Miles, Claines.

Five theaves, £3, Mr. Jas. Webb.

Five ewe lambs, £3, Mr. Jas. Webb; 2nd, £2, Mr. J. Miles.

Shearling ram, £5, Mr. J. Lynn; ram of any age, £3, Mr. J. Lynn; 2nd, £1, Mr. J. Lynn.

#### SHROPSHIRE.

Five breeding ewes, having had lambs in 1868 and suckled them up to June 1st, £3, Mr. C. Reynolds, Penkridge; 2nd, £2, Mr. H. Allsopp.

Five theaves, £3, Mr. R. Berkeley, Spetchley; 2nd, £2, Mr. R. Berkeley; 3rd, £1, Mr. H. Allsopp.

Five ewe lambs, £3, Mr. H. Allsopp.

Shearling ram, £5, Mr. C. Reynolds; ram of any age, £2, Mr. G. Crump, Pershore.

#### CROSS-BRED.

Five breeding ewes, having had lambs in 1868 and suckled them up to June 1st, £3, Mr. Jas. Webb; 2nd, £2, Mr. J. F. Hall; 3rd, £1, Mr. W. Lea, Cotheridge.

Five theaves, £3, Mr. G. W. Crump; 2nd, £2, Mr. J. F. Hall; 3rd, £1, Mr. Jas. Webb.

Five ewe lambs, £3, Mr. Jas. Webb; 2nd, £2, Mr. E. T. Goldingham; 3rd, £1, Mr. E. T. Goldingham.

#### PIGS.

Boar pig of any age, £5, Mr. R. Berkeley; 2nd, £2, Mr. H. Allsopp; 3rd, £1, Mr. G. McCann, Malvern.

Sow with pigs, the age of the pigs not to exceed 9 months, £4, Mr. R. Berkeley; 2nd, £2, Mr. H. Allsopp.

#### HORSES.

Stallion cart horses for agricultural purposes, £10, Mr. I. Timms, Bromyard.

Cart mare and foal, £5, Mr. James Corbett, Severn Stair; 2nd, £2, Mr. S. Davis, Pershore; 3rd, £1, Mr. J. Miles.

Two and under three years old cart filly, entire colt, or gelding, £5, Mr. B. Hickman; 2nd, £2, Mr. S. Davis; 3rd, £1, Mr. H. Hudson, Pershore.

Three-year-old gelding or filly likely to make a hunter, £5, Earl Dudley; 2nd, £2, Earl Dudley.

Brood mare for producing hunters, belonging to a tenant farmer within the county or Worcester (given by H. F. Vernon Esq., M.P.), £10, Mr. B. Prosser.

#### EXTRA STOCK.

CATTLE.—£1, Earl Dudley, pair of Highland oxen; £1, Earl Beauchamp, Shorthorn dairy cow; 10s., Earl Beauchamp, Shorthorn dairy cow; £1, Earl Beauchamp, Shorthorn heifer; £1, Mr. J. Lynn, Shorthorn bull; 10s., Mr. E. J. Morris, Hereford calf, under one year.

HORSES.—£2, Earl Beauchamp, agricultural stallion, "Clydesdale;" £2, Mr. S. Davis, pair agricultural horses.

## AGRICULTURAL RETURNS OF GREAT BRITAIN FOR 1868.

It has not been practicable to obtain from all parts of England and Wales the information necessary for the completion of the Agricultural Returns for this year until the present date. With the view of making known as early as possible the chief results exhibited by the Returns, the following particulars are furnished in anticipation of the publication of the Returns in detail:—

EXTENT OF LAND IN GREAT BRITAIN UNDER			
	Wheat. Acres.	Barley. Acres.	Oats. Acres.
1866 ...	8,350,394	2,237,329	2,759,923
1867 ...	8,367,876	2,259,164	2,750,487
1868 ...	8,646,260	2,149,201	2,753,240
INCREASE (*) OR DECREASE (†).			
	Wheat. Acres.	Barley. Acres.	Oats. Acres.
1868 over {	*278,384	+109,963	*2,753
1867... {	or 8·2 per ct.	or 4·9 per ct.	or 0·1 per ct.
1868 over {	*295,866	+88,128	+6,683
1866... {	or 8·8 per ct.	or 4·0 per ct.	or 0·3 per ct.
TOTAL NUMBER OF LIVE STOCK IN GREAT BRITAIN UPON			
	Cattle.	Sheep.	Pigs.
1867 ...	4,993,034	28,919,101	2,966,979
1868 ...	5,416,154	30,685,980	2,303,857
INCREASE (*) OR DECREASE (†).			
	Cattle.	Sheep.	Pigs.
1868 over {	*423,120	*1,766,879	+663,122
1867... {	or 8·5 per ct.	or 6·1 per ct.	or 22·3 per ct.

The amount of land in Great Britain under potatoes in 1868 was 539,554 acres, against 492,217 in 1867 and 493,843 in 1866.

The acreage under hops in 1868 was 64,488, against 64,284 in 1867, and 56,578 in 1866.

*Statistical Department, Board of Trade, Sept. 19.*

## IRISH AGRICULTURAL STATISTICS, 1868.

The Registrar-General gives the following as the total extent of flax grown in Ireland in each of the following years:—

	Acres.		Acres.
1851 .....	140,536	1860 .....	128,595
1852 .....	137,008	1861 .....	147,057
1853 .....	174,579	1862 .....	150,070
1854 .....	151,408	1863 .....	214,099
1855 .....	97,075	1864 .....	301,693
1856 .....	106,311	1865 .....	251,433
1857 .....	97,721	1866 .....	263,507
1858 .....	91,646	1867 .....	253,257
1859 .....	136,283	1868 .....	206,446

## AGRICULTURAL STATISTICS, IRELAND, 1868.

Mr. Donnelly, the Irish Registrar-General, has made his usual annual report, from which we learn that the total acreage under all crops in 1868 was 5,547,335 acres; ditto, 1867, was 5,459,702 acres—showing an increase in the extent under crops in 1868 of 87,633 acres, which is thus accounted for: compared with 1867 wheat increased by 25,756 acres, oats by 39,408, barley by 15,199, and here and rye by 304 acres. Beans and peas decreased by 3,583 acres. Potatoes increased by 33,072 acres, mangrel and beetroot by 270, cabbage by 8,753, and carrots, parsnips, and other green crops by 1,102 acres. Meadow and clover increased by 33,462 acres. The crops which decreased in area in 1868 were turnips by 15,662 acres, vetches and rape by 3,638, and flax by 46,811 acres—the net increase in the acreage under crops in 1868 being 87,633 acres.

The total estimated value of horses, cattle, sheep, and pigs this year was £34,098,742, being a decrease of £1,058,477 compared with 1867.

## THE ROYAL AND CENTRAL BUCKS AGRICULTURAL ASSOCIATION.

### MEETING AT AYLESBURY.

At the dinner of the Association, Sir HARRY VERNY said, as a member of Parliament, he would refer to one matter which was of great interest to them, the enormous increase of the poor-rates. It would be a great thing if they could keep the rates separate, so that the people might know what was paid for poor-rate and what for county-rate, and he also wanted to see those who paid the rates have a more direct control over the expenditure of them. Financial Boards would be of very great benefit to the country at large, and if they were under the management, in a great measure, of ratepayers, he should not be afraid of niggardness or improper economy being used by them, for where the ratepayers had more control over the money, they would all be animated by the same spirit for the benefit of the country, and they would, he felt sure, show as much wisdom and proper feeling in the expenditure as those who now had the control of them. He did not make these remarks without some confirmation, from experience, for that opinion, for since the ratepayers had been admitted to the control of the Poor-laws, they were better administered than they were before. Many of them might not, but he did not recollect the old system, and he could testify that the present system had conferred immense benefit upon all classes. Those who have to administer the Poor-laws, do it with a spirit of justice, of kindness, and of charity towards those who receive that relief, and, at the same time, look well after the interests of those who contribute the money, and see that improper persons do not receive relief.

Mr. J. K. FOWLER said this was a red-letter day for the county of Buckingham; they had a very large amount of good stock. He thought their poultry show was a very great success indeed, in which he had taken some very good prizes, but he never felt so proud in his life as he did that day, at taking first and second prizes for Shorthorn heifers, bred by himself. The sheep which had been brought from different parts of England to their show that day, showed that great care and attention had been paid to the selection of the male animals, and did great credit to the judgment of the men who had selected the animals which they saw on the ground.

Mr. STONE said there was one subject alluded to by the honourable baronet the member for Buckingham (Sir H. Verney), which was also mentioned by Mr. Fowler, in which he, having been connected with the Aylesbury Union for a period of nearly forty years, naturally took a great interest—that was, the question of poor-rates. It was a subject of deep regret to him that these rates should have been so enormously increased; and he quite agreed with what Sir Harry Verney had said on the subject. The amount of money collected as poor-rate was not all expended for the purposes of the poor; and he thought it was necessary that it should be separated under its different heads, in order that it might be understood by the general public. He had always contended that the ratepayers should have more control over the expenditure of the county rates; and some time ago he attended as one of a deputation, on the part of the Aylesbury Union, to draw the attention of the Government to the subject; and, as the expenditure on behalf of the county rate had nothing whatever to do with the relief of the poor, it ought to be separated from it. If they thought the services of the committee had been of any use, they should be happy to place themselves at the disposal of the Society again.

Mr. ACTON TINDAL gave "The Successful Competitors." In proposing the toast, he felt that he was speaking somewhat of himself; for his ploughman had taken the first prize in the champion class, beating the famous ploughman of Messrs. Ransome and Sims.

Mr. TREADWELL was delighted to see so many of the gentlemen of the county at the head of the table; and he hoped such attendance would be continued for the future. If they had one good central show, it would tend much to draw the gentry together upon these occasions; for when they were separated in such small societies as they had now over the county, they could not expect them to subscribe to or attend all these little shows. There was a line of railway opened that day connecting the north-west part of the county with Aylesbury; and if they had a large central show at Aylesbury

more of the gentry would come to visit them, and it would be very advantageous to them as farmers and breeders of stock. If they had some little animals at home, and did not go abroad to compare, they would remain satisfied with what they had; and by going to a wider area, they would see animals by which their stock could be improved, and they

would know where to go to. Ever since a short time after he commenced business, he took to the purchase of male animals for the purpose of improving his breed. He had commenced with a small, ordinary stock; and he had never laid out any money in the purchase of females, but restricted himself to the purchase of male animals.

## ARTIFICIAL MANURES.

At a meeting of the North Riding Chamber of Agriculture in York, Mr. COLEMAN read a paper on artificial manures, which were of extreme importance in this neighbourhood, owing to the large quantity of potatoes and flax, in addition to a full proportion of corn, which were grown, and the corresponding paucity of sheep stock rendered a large quantity of extraneous manure absolutely necessary, in order to maintain the fertility of the fields, and grow such crops as shall prove remunerative. Their management in this district was less self-supporting than in many districts. In order to show the necessity for manure, they must briefly glance at the composition of the crops, the action of combustion, the nature of the combustible portions, oxygen, hydrogen, nitrogen, and carbon. The development of the artificial manure trade had been most remarkable, and unmistakably advantageous from one point of view. They were led to question whether the facility with which they had been supplied had not led to waste of their own resources. The very materials for which they paid so heavily were too often permitted to ooze away into the nearest ditch and pollute their streams. Baron Liebig, to whose investigations they owed in a great degree their present advanced position, warned them that the time would come when their reckless extravagance would bring down upon them heavy discomfirt; and that the decay of the country would date from the day when the supplies of phosphates would fall short. Without going quite so far, he would earnestly impress upon them the importance of taking care of the manure of the farm. It was sad to see the ignorance that was apparent in unsounded yards, where the manure was washed out, and the horse pond made of a porter colour. Even if it could be shown that the waste thus incurred could be more economically made up by the purchase of artificial manures than by the outlay necessary to prevent it, it would still be clear that taking a broad comprehensive view, their practice was most reprehensible. The subject then under notice, however, was not the management of home manures. All he would urge at present was that artificial manures should be used as auxiliaries only, to make up that deficiency a forcing system necessitated, when every care had been bestowed upon the home supply. The statistics of the manure trade were almost startling. In 1841 and 1842, Mr. Lawes, acting upon the suggestions of Baron Liebig, commenced the manufacture of superphosphate of lime. Guano, as a trade, was established about 1842, although some few cargoes had previously arrived. They were informed by a Westmoreland farmer that he was present at a dinner party when the host handed round a small box of what might be thought was a new variety of snuff, but which was guano. They might gather some idea of the growth of the trade from the following facts: Messrs. Gibbs, in 1842, imported 182 tons of guano; in 1843, 4,667 tons; in 1862, 435,000 tons. Of the latter quantity from one-third to one-fourth was used in the United Kingdom. The price at first ranged from £10 to £15, and it was now £12 to £13 per ton. Artificial manures might be separated into two groups, namely, those that like guano and certain composite productions, supplied to plants the various minerals and ammonia which were required for the additional produce aimed at beyond that which the soil could afford; and simple substances like nitrate of soda, sulphate of ammonia, salt, and to a certain extent superphosphate of lime. After speaking of the good qualities of Peruvian guano for various kinds of crops, Mr. Coleman said that although Peruvian guano was so beneficial on loam soils, that farmers believed in nothing else, yet there were soils on which it had no action, and others where it was injurious, especially for root crops. As a rule, guano was the least effective upon clays, as they possessed sufficient nitrogen, and only required a stimulant, which was found in nitrate of soda and superphosphate of lime. Fully alive to the value of really

good Peruvian guano, he warned farmers against placing too much dependence on it. Already notes of warning had reached them that the supplies were being exhausted, and there could be no doubt that the quality was more irregular than formerly. Great as were the original accumulations, the deposits of thousands of years, it was quite evident that a time must come sooner or later when the supplies would cease or be greatly reduced. What were they doing to economise their own resources all the time? Would it be credited in the future that, whilst paying millions for birds' dung, they were allowing their own excreta not only from large centres, but on individual farms, to be completely lost? He recommended the use of earth closets everywhere, and then alluded to nitrate of soda and salt, stating that it would be impossible in the limits allotted to him to enter into detail upon the multifarious substances pressed into the service of the farmer, much less to describe the processes by which they were utilised. The most important group were those in which soluble phosphate of lime formed the presiding element. The influence of phosphates on the growth of our green crops was more especially remarkable. A good bone phosphate should contain from 23 to 25 soluble, and 7 to 10 insoluble. A good mineral phosphate should yield from 28 to 30 soluble, and 2 to 4 insoluble. His advice was to purchase only of first-rate men, men who had a character to lose, and to buy by a guaranteed analysis, submitting a few samples of the bulk to analysis as a test. He recommended farmers to join the Royal Agricultural Society, and by so doing they could get their manures analysed at half-price by first-rate men. Phospho guano was an example of a highly soluble phosphate, made from a mineral phosphate found as a crust on certain trap rock islands within the tropics, exceedingly rich in phosphate of lime. It was sold at about £11 a ton. Mr. Coleman proceeded to contend that low-priced were not cheap manures. He desired to avoid saying anything that might be thought too severe, but the ignorance which too generally prevailed amongst farmers, and their love of bargains, opened the way and made it easy for unscrupulous vendors to reap a rich harvest. Many years ago a French firm drove a flourishing trade in this country with what was known as "British Economical Manure." This stuff was sold at £12 per ton, and was said to be superior to Peruvian guano. It was only worth about £3 commercially, but agriculturally often *not*. He gave an instance of some worthless stuff called nitro-phosphate being sold by auction in York last winter, and it was of a worthless description. He showed that farmers suffered loss by buying genuine manures which did not contain a sufficient amount of fertilising ingredients according to the price paid for them. A few words as to the application of artificial manures. On light soils, which were naturally weak, manuring every crop was found to be essential. Soluble manures should be sown as directly as possible, especially on light soils. All clays possessed retentive power enough to preserve every atom that was valuable, hence they might use their own convenience; but on sands they should go as near the surface as possible. Potash was required for both clover and potatoes, and manures for these crops should contain some. Mr. Coleman gave some particulars of experiments with manure which had been tried on artificial grasses at the Menagerie Farm, Eecrick, showing the amount of dressings of manures, and the weight of the crops cut on June 12 and August 24. The manures used were nitrate of soda, sulphate of ammonia, mineral superphosphate (dissolved coprolites), common salt, muriate of potash, and sulphate of potash, at the rate of 440lbs. per acre, and one ton of gypsum. The result showed that the crops on June 12 were much heavier than on August 24. Mr. Coleman stated that grass-land, as a rule, was shamefully neglected, and he contended that no outlay was so remunerative as improvement of grass.



## A "MODEL" AGREEMENT.

"The Model Agreement" should be rather a stale joke by this time. It is generally drawn up by a busy agent or ambitious lawyer, and its several ramifications read out before a company of much-admiring agriculturists, who dutifully follow so far as human patience or common comprehension can go. Of course the great object is to improve on the standard obsolete form, which went to declare that a tenant should not do this, and should do that—that he must not sell this part of his produce, and he must take a certain price for that, and so forth. And as a rule, of course, the Model Agreement turns out to be something rather worse than the old original. After, however, the very remarkable exposition by the younger Mr. Grey at the Hexham Farmers' Club, early in the present year, it was to be hoped that little more would be heard of this sort of thing; at least, for a passing season or so. But the Chambers of Agriculture have, as is said, broken up quite new ground, and so in Carmarthenshire the other day this pretty piece of business was all gone through again. It is only fair, though, to say—and we give a full report of the meeting below—that the gentleman who undertook to introduce the subject knew perfectly well what he was about, the errors to avoid and the rocks to steer clear of, upon which previous pilots had foundered. The cardinal points to observe, says Mr. Harvey, are that "the tenant should have full liberty to farm according to his own ideas"—that "the term of every tenancy should be embodied in as plain and brief a manner as is consistent with perfect clearness"—and that he will "not read a homily to tenants on the way they should manage their farms." The premises could scarcely be better laid. Our lecturer is manifestly well alive to the spirit of the age, when a tenant must be left to do the best he can by the place, and be no longer hampered with cumbersome covenants and lengthy enactments, that he would probably never read and possibly never understand. And then, in fulfilment of all this good intention our Cambrian authority proceeds to unravel, as he begs, "without interruption," an agreement that runs to "fiftiethly," with sundry provisos" and "alsos," as conditions to be observed by the tenant; coupled with one hardly knows how many more, to regulate the conduct of the landlord! An agreement which, prepared by "a legal friend," abounds in all the worst evils of that which it proposes to replace—the wearisome perplexing prolixity, the absurdly minute detail, and the ever-recurring penalty to which the man who does not farm according to law shall be subjected. He shall not sell his straw—he shall not kill the rabbits—he shall not take this crop after that—he shall not sell his produce in the way he thinks fit, and so on. Mr. Harvey is "averse to viewing the tenancy of land simply from a commercial point of view," but it is much to be desired that he would do so. No commercial man would ever dream for a moment of putting his name to such a contract as that brought as an example before the members of the Carmarthenshire Chamber of Agriculture. But, then, Mr. Harvey is "still weak enough to think there should be mutual feelings of good-will, kindness, and gratitude subsisting between those who own and those who occupy the land." And a fine opportunity he has given for the display and development of this good feeling in the precious paper he has just put his sign to! A mutual understanding, wherein the one is ready to give

the other credit for little or nothing; but where, from the very outset, the tenant is regarded as very like a rogue, and the landlord as quite equal to cope with him in the way of sharp practice.

One has barely patience to read through such a document; and how the meeting took it may be gathered from the discussion that followed. Mr. Purley, a landowner, who is about to contest the county, certainly only found fault with this agreement because "it was much too long, and likely to lead to law." Could it be possible to say more? Could any stronger objections be urged than that, running to the length it does, the provisions of this paper are still so confused that it will require the costly aid of the Courts to properly interpret their meaning? Mr. Harvey and his handiwork could seek for no greater condemnation. But Mr. Bishop, who we shall assume to be a lawyer, does not quarrel with the length, as "this will do no harm to members of my profession," and of course furnish them with employment in more ways than one; while Mr. Brodie thinks "a lease should be as simple as possible, with much fewer words than we generally find in such documents, and drawn at as small a cost as possible." Mr. Harvey himself does not seem to be quite so clear as to whether his "articles" are intended for a lease or yearly agreement; but whether for one or the other the principle of the thing is equally obnoxious.

Here are some of the very particular clauses: The exclusive right of the rabbits shall be reserved to the landlord—the tenant shall consume on the farm all the green crops, hay, straw, muck, and manure—he shall not breast-plough, pare, or burn without permission—he shall not have in tillage in any one year more than so many acres—he shall not carry away from off the premises any hay, straw, corn in straw, green crops, muck, or manure—and he shall have certain allowances on leaving for lime used in top-dressing. The monstrous proposition, at least in a model agreement, for reserving such vermin as rabbits as landlords' rights, is got over by a clause on the other side permitting the tenant to occasionally destroy them, but not *with a gun*! Such pests to the farm should be rooted out by every known means, and Mr. Harvey will see in our paper of this day a proposition from a Lincolnshire farmer—one of the best cultivated and at the same time one of the most sporting districts in the kingdom—to make any agreement illegal which went to reserve the rabbits to the landlord. From a discussion now going on in Devonshire, Sir Lawrence Palk appears to have endangered his seat from reserving the rabbits on his estates, although of course the tenants have occasional "permission" to kill some; and yet, forsooth, what the farmers object to in the West is made the basis of a model agreement in Wales! Again, a tenant is not to sell a ton of hay or a load of straw, at a time when steam is supposed to be about to take the place, at least in some degree, of horse-power in the cultivation of the land, and other changes are occurring in the system of providing manures. He shall have just so many acres in tillage, and he shall not do this or that act of husbandry without permission. In other words, the landlord or his agent shall farm for him, and the tenant be content to take the rank of a bailiff. He shall, however, enjoy something like a Tenant's Right for the use and benefit of lime; as if there were no

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other manures, artificial or otherwise, the strength of which should be taken into consideration.

According to one of the speakers a tenant will sign anything; but, fond as the Welsh are supposed to be of litigation, it is to be hoped that no man will ever be rash enough to put his name to such a paper as this. The meeting naturally enough could make nothing of it, and the discussion is to be adjourned for three months. But this is not long enough. In the House of Commons, when a rigmorole tiresome measure is brought forward with little or no actual use about it but to waste time, some honourable gentleman, on the introducer sitting down after having had his say out, is quick to move the Bill "be read again this day six months." We commend the precedent to the best attention of the Carmarthenshire Chamber of Agriculture.

At the second meeting of the Carmarthenshire Chamber of Agriculture Mr. HARVEY said: I have the honour to introduce the subject of "The best Form of Agreement for the Protection of both Landlord and Tenant." It has so happened that this subject has been occupying my attention for some years, and I shall endeavour to the best of my ability to give you the result of my labours and experience. I shall this morning confine myself strictly to the subject before us, and do not intend to lecture the landlords on their duty to their tenants, nor, on the other hand, to read a homily to tenants on the way they should manage their farms; I shall only say that a good landlord generally makes a good tenant, that I am averse to viewing the tenancy of land simply from a commercial point of view, and that I am still weak enough to think that there should be mutual feelings of goodwill, kindness, and gratitude subsisting between those who own and those who occupy the land. There are certain cardinal rules, for the management and cultivation of land, which must be attended to and not infringed, and then the trifling variations in the method of farming, and other matters which locality or climate render necessary, will not prevent full justice being done to landlord and tenant. The agreement which I shall now submit to you embodies these cardinal rules, allowing the tenant full liberty to farm according to his own ideas, so long as he does not exceed certain limits. It is prepared for a yearly tenancy, but, with some trifling alterations, is equally suitable for a lease for years. You can therefore see, gentlemen, that, instead of giving you an abstract lecture, I have thought it more practical to prepare an agreement. There can be no difference of opinion as to the desirability of having the term of every tenancy embodied in as plain and brief a manner as is consistent with perfect clearness; but we must sacrifice even brevity to attain perfect clearness, and I find that it is impossible to have a thoroughly good agreement shorter than the one which I have prepared. I am indebted to a legal friend for the great clearness and precision with which he has embodied my ideas in this document, after one of Davidson's forms, and I consider that it will ensure a good state of condition in a farm, even if subject to frequent changes of tenancy. I shall not take up your time any longer, but proceed to read the agreement, making such commentaries as I think are necessary. I have procured a number of copies, and I shall be obliged if gentlemen who intend taking part in the subsequent discussion will allow me to read without interruption; but they can make notes on their copies, and we can hear what they have to say after I have finished. This course will save much time; for, as you hear me read, many questions that you would wish to ask will be found to be answered, and you will have the advantage of having the document before you, as a whole exposition of my idea of the best form of agreement for the protection of both landlord and tenant.

This is the agreement:—

AN AGREEMENT entered into this \_\_\_\_\_ day of \_\_\_\_\_ 18—, between \_\_\_\_\_ hereinafter called the Landlord of the one part and \_\_\_\_\_ hereinafter called the Tenant of the other part.

The Landlord will when required by the Tenant by Deed grant to the Tenant and the Tenant will thereupon without requiring or investigating the Landlord's Title accept a lease of the Messuage Farm and Lands called \_\_\_\_\_, situate in the

Parish of \_\_\_\_\_, in the county of \_\_\_\_\_, containing in the whole \_\_\_\_\_ or thereabouts, and now in the occupation of \_\_\_\_\_, with the easement and appurtenances thereto belonging or usually held therewith, Except all mines, minerals, quarries, stone, clay, sand, and gravel, timber, trees, woods, underwoods and saplings, in, under, and upon the said premises. And reserving unto the Landlord and all persons authorised by him, liberty to search for, dig, dress, make merchantable, fell, cut, carry away, and dispose of the said several excepted things respectively, and for the purposes aforesaid to sink all necessary pits and shafts, and make and erect all necessary erections, machinery, roads, and other conveniences and things making to the Tenant reasonable compensation for all damage occasioned by the exercise of the liberties hereinbefore reserved, such compensation in case of dispute to be settled by arbitration as hereinafter provided, And also reserving the exclusive right of shooting, sporting, fishing, and preserving game, rabbits (except as hereinafter mentioned) [I shall explain that presently], wild-fowl, and fish upon or in the said premises For the term of one year, from the 29th of September 18— and so on from year to year until the demise shall be determined at the end of the first or any subsequent year by either party giving to the other on or before the 25th of March in any such year notice to quit in writing At the certain yearly rent of £\_\_\_\_\_ to be paid by equal quarterly payments on the 24th of December, the 25th of March, the 24th of June, and the 29th of September in every year the first of such quarterly payment to be made on the 24th of December next and the last to be made in advance one calendar month before the expiration of the demise And at the additional contingent yearly rent of £10 for every acre and so in proportion for a less quantity of the fields hereinafter mentioned (that is to say) [Here it is proposed to fill in the names of the meadows in question] which shall be broken up or converted into tillage without the consent in writing of the landlord for that purpose first had and obtained The said additional contingent yearly rent to be paid quarterly on the days aforesaid and the first payment to be made on such one of the said quarterly days as shall first happen after the event on which such contingent rent is made payable and all the said yearly rents both certain and contingent to be paid without any deduction for tithe-rent charge land tax or anything else except county road rate.

The said lease shall contain the following covenants on the part of the tenant:—

*First.*—To pay the said certain yearly rent, and if the same shall become payable the said additional contingent rent at the times and manner aforesaid.

*Second.*—To pay the tithe rent-charge together with a proportionate part thereof for the time which shall have elapsed between the expiration of the demise and \_\_\_\_\_ of \_\_\_\_\_ then next preceding and all existing and future taxes, including land tax (if any), rates, assessments, and outgoings of every description, except county road rate for the time being, payable either by landlord or tenant in respect of the premises. [The explanation of the blank is this—The tithe rent-charge is, generally speaking, paid on the 1st of October, and the tenancy generally terminates on the 29th of September. This is to prevent a tenant escaping the proper payment of the charge].

*Third.*—To keep the said messuage together with all fixtures and additions thereto, and all buildings for the time being on the said premises, and also the thatched roofs, pumps, gates, stiles, rails, hedges, fences, walls, bridges, roads, ditches, and water-courses belonging to or upon the said premises generally, in good tenantable repair, the landlord allowing timber in the rough alates and thatch, but the tenant doing a paying for the labour and carriage. And in particular, to every second year to whitewash or otherwise colour the walls both outside and inside, and in every fifth year to paint all the outside wood-work usually painted, and in every seventh year to paint all the inside wood-work usually painted.

*Fourth.*—To consume on the said farm and lands all the green crops, hay, straw, muck, and manure produced thereon, and generally to cultivate and manage the same in good and husband-like manner, according to the custom of the country in reference to farms of a like nature, except so far as the same

is hereby varied, and not to commit waste upon or impoverish the said farm and lands.

*Fifth.*—And particularly not to plough up or convert into tillage any of the said several fields herein-before specified without such written consent as aforesaid. [The fields have been specified, but this is a covenant not to plough them, &c.].

*Sixth.*—And not to have in tillage in any one year more than ——— acres of the other or remaining lands.

*Seventh.*—And not to take out of any of the tillage lands more than two successive corn crops without an intervening fallow or green crop.

*Eighth.*—And not to breast-plough, pare, or burn any part of the said farm lands without such written consent as aforesaid. [Consent here can be given, but, generally speaking, I object to breast-ploughing].

*Ninth.*—And not to carry away from the said premises any hay, straw, corn in straw, green crops, manure, or manure grown or produced thereon except wheaten thatch, provided that for every load of wheaten thatch two full loads of good rotten dung or an equivalent quantity of other good manure be brought back.

The CHAIRMAN (Mr. John Jones): What do you mean by wheaten-thatch?

Mr. HARVEY: The regular straw of wheat, which is wheaten-thatch.

Mr. WILLIAMS (Llanginning): Supposing a tenant was very far out in the country, it will be difficult for him to procure any rotten dung.

*Tenth.*—Not to assign or underlet the said premises or any part thereof, except labourers' cottages and gardens, without such consent as aforesaid.

*Eleventh.*—Not to plough any pasture land or land laid down for pasture after giving or receiving notice to quit under a penalty of £10 for every acre ploughed, and so in proportion for a less quantity such penalty, to be regarded as liquidated damages, and to be recoverable immediately by distress, as if the same were rent in arrear. [This is to deviate a custom prevalent with some tenants of ploughing up a considerable quantity of land. Ploughing for ley oats should be done before the 25th March; any ploughing afterwards must be prejudicial to the farm].

*Twelfth.*—To sow every year in all outgoing lands a sufficient quantity of clover and grass seeds such seeds in the last year to be sown in such fields as the Landlord or incoming Tenant may select, and to be sown and harrowed without charge, and the growth thereof not to be depastured by cattle or horses. [You will observe that I forbid cattle or horses, but not pigs].

*Thirteenth.*—To permit the landlord and all persons authorised by him at any time or times during the demise to enter upon the said premises to inspect the state and condition thereof.

*Fourteenth.*—[This is a very important clause.]—To sell to the landlord at a valuation to be made in the usual way all the hay the produce of the last year at a consuming price, and all the green crops, lime unused, and manure on the said premises at the expiration of the demise. And also all the corn in the straw the produce of the last year, provided that notice of the landlord's desire to purchase such corn in the straw be given on or before the 1st of July in the same year, provided also that if no such notice be given, or if no agreement to purchase be entered into the tenant shall be at liberty to imburn and stack upon the said premises all such corn as aforesaid, and to thrash out the same at his own expense leaving the straw gratis for the incoming tenant provided also that the whole of such corn must be thrashed out and removed on or before the 24th of December next after the expiration of the demise. [I want to make one or two observations on this. First the landlord is made responsible because the farm may be unlet; and valuers will settle with regard to green crops. Then, again, the corn being thrashed on the premises is to do away with the sales by auction which are so prevalent in this country. When I am asked as to the custom of the country, I must say the custom varies. In Pembrokeshire, particularly, I am obliged to say with a great deal of reluctance, that the custom of the outgoing tenant is to tell off the hay and corn crops by auction. (A voice: "So is it in Carmarthenshire.") By this clause, if the landlord does not agree to buy, or the

incoming tenant to take the crops by valuation, then, the outgoing tenant may retain possession of the haggard, and have the use of the barn for three months to thrash his corn. The new tenant who enters upon the farm and purchases the corn may say, "How can you ask me to sign the covenant, because when I quit I shall be leaving behind my straw which I took when I entered," but if the landlord can be induced to make a compromise with the tenant by making an allowance to him in money, or something of that kind, which would effect his adoption of this clause it would work a most important change in the agriculture of this country. This clause is, of course, liable to objection, and I shall be happy to hear what the practical gentlemen have to say upon it. I think all of you will agree with me that it is most important to keep straw on the farm].

*Fifteenth.*—To deliver up the said premises and all buildings, machinery, fixtures, and additions thereto, except such as the tenant shall be entitled to remove under or by virtue of any Act of Parliament, and which the landlord shall have not elected to purchase in such good tenable repair as aforesaid, and in all respects in such state and condition as shall be consistent with the due performance of the stipulations herein contained or to be contained in the said lease. [This clause requires a little explanation. There is an Act of Parliament—the 14th and 15th Vic., chap. 25—which enacts that any tenant who obtains the consent of the landlord to erect any buildings on the farm, when he quits the farm may remove those buildings; but the landlord has the option of giving one month's notice of purchasing them. If the tenant got permission of the landlord to erect even a barn, he could remove when he quitted, if the landlord did not give notice to purchase it. Mr. Harvey then read the section of the Act, which stated that if, after the passing of that Act, any tenant of any farm or land should get the consent in writing of the landlord for the time being, to erect, at his own cost and expense, any farm-buildings, attached or otherwise, or set up any engines or machinery for agricultural or trade purpose, then the said buildings, engines, machinery, &c., should be the property of the tenant, and should be removed by him, notwithstanding that the same may consist of separate buildings or otherwise, or be in the whole or in part permanently fixed on the soil, provided that the tenant do not injure the land, and that he leave the premises in the same condition as he found them, provided also that no tenant should be entitled to remove such property without giving to the landlord one month's notice of his intention to do so, whereupon the landlord should be entitled to purchase the same; the price to be determined by two referees.]

Mr. WILLIAMS (Llanginning): There is no limit of time, I see?

Mr. HARVEY: Oh, no; but you must give your landlord notice.

Mr. WILLIAMS: Then if it was a twenty years' tenancy, it would be all the same?

Mr. HARVEY: Exactly; and the price depends on the referees.

And in the said lease there shall be inserted a proviso that if the said premises or any part thereof shall at any time be out of repair, and the tenant shall neglect or refuse to repair the same within two calendar months after notice in writing to be given by or on behalf of the landlord, the landlord may cause all such repairs as shall be specified in such notice to be done, and may recover the expenses of such repairs less the cost of such materials as the landlord is hereby bound to provide by distress as if such expenses were rent in arrear.

And also a proviso for re-entry if any of the said several rents shall be in arrear for twenty-one days whether legally demanded or not, or if the tenant shall be adjudged bankrupt, or shall enter into any composition with his creditors, or any particular class of his creditors, or if execution shall be levied upon his goods and chattels, or upon the said premises, or if and whenever there shall be a breach of any of the tenants' covenants. [This simply gives you certain rights in case of breach of contract.]

And the lease shall contain the following covenants on the part of the landlord:—

*First.*—To insure the dwelling-house and farm-building in the sum of ——— pounds at the least, and in case of destruction or damage of the same or any part thereof by fire, to rebuild

or repair the part or parts so destroyed or damaged without delay, the tenant carrying all necessary materials without charge.

**Second.**—To provide timber in the rough state and thatch for repairs whenever needed. [Now, I wish to draw a distinction between things purchased and things grown on the farm; and I shall put it to you presently whether, thatch being grown on the farm, it is desirable for the landlord to pay for it, or for a substitute for it. My experience teaches me that tenants do not like thatch. If the landlord likes he can strike out the word "thatch," and put in "slates." He can do so, and the tenant will be generally agreeable to that, I think. This agreement is drawn on the principle that the tenant does the work, and the landlord finds the materials.]

**Third.**—To permit the tenant and his servants to destroy the rabbits by ferreting and digging in the fields and hedgerows from the — of — to the 1st of March in every year. [Here I must give you my own opinion, which is, that tenants ought to be allowed to kill rabbits. At the same time they ought only to destroy in the way mentioned in the agreement. I do not consider that the tenant ought to be allowed to kill rabbits with guns, but be simply allowed to rid himself by the means specified.]

**Fourth.**—[I wish to call attention to this particularly.] To purchase of the tenant on quitting at a valuation to be made in the usual way all the hay the produce of the last year at a consuming price, and all the green crops, lime unused, and manure on the said premises at the expiration of the demise, and to pay or allow for lime spread upon or brought to bare fallows, and for labour bestowed upon, and for rent-rates and taxes paid in respect of such fallows. [There is nothing new in that, but there is this—] and also the cost price at the kiln of all lime, of which one crop only shall have been taken, and for the carriage of muck during the last year, and for clover and grass seeds sown during the last year, if the growth of such seeds has not been depastured by cattle or horses. [Now, this has been in use with us for some time, and is very convenient. If a farmer has had a great deal of trouble in preparing his fallow for wheat, and the next year gets notice to quit, we consider that he is entitled to the cost of the lime which he has used, because the incoming tenant finds the land well prepared, and gets a very good crop, perhaps without any expense whatever.]

**Fifth.**—To allow annually for the years one-tenth part of the cost of efficient under-draining if done with the consent in writing of the landlord, the first of such annual allowances to be made on the 29th of September next, after such draining shall have been completed if the tenant shall have satisfied the landlord that the works have been properly executed, and that the entire sum claimed has actually been expended in the execution of such works, provided that during such period of ten years no increased rent shall be demanded by the landlord in respect of the lands which shall have been so drained as aforesaid, provided also that if within such period of ten years the demise be determined by either party giving notice to quit, the remainder of the said allowances shall become payable at the expiration of the demise. [Now in this case, supposing the landlord is unwilling to lay out £100 in draining, and the tenant feels confident that the outlay will repay him, the landlord may give his consent in writing, and the tenant may lay out £100 in draining to the satisfaction of the landlord.]

**Mr. C. BISHOP:** It does not say here "to the satisfaction of the landlord."

**Mr. HARVEY:** It says with the consent of the landlord, and stipulates that it is properly executed. The tenant shall satisfy the landlord that the work has been properly executed. Then the first year after this draining has been done the landlord will allow him, say £10, the next year another £10, and so on. But supposing that after five years the landlord gives him notice to quit, then £50 will be unpaid. He will have to pay it.

**Sixth.**—To allow at the expiration of the demise for lime used in top-dressing meadow or pasture lands in manner hereinafter-mentioned, viz., if the tenant has had one year's grazing or one mowing then the entire cost price at the kilns, if two year's grazing or two mowing, then one-half of such cost price, and if three year's grazing or three mowings, then one-third of such cost price, provided that if the tenant has had more than three year's grazing or more than three mowings,

no allowance shall be made. [This has been inserted in order to encourage a course which I think is somewhat generally neglected. Farmers, generally speaking, do not seem to like the outlay.]

**The CHAIRMAN:** It only mentions lime.

**Mr. HARVEY:** Because lime is purchased for bringing on the land. Manure is made on the farm.

**The CHAIRMAN.**—It does not mention artificial manure.

**Seventh.**—And also the usual qualified covenant for quiet enjoyment by the tenant.

And the said lease shall also contain a proviso for referring disputes to arbitration similar to the proviso in that behalf hereinafter contained.

And the landlord further agrees with the tenant to put the buildings gates stiles hedges and fences upon the said premises in good tenable repair with all convenient speed after the said 29th of September next.

[This is the agreement for the in-coming tenant.] And the tenant further agrees with the landlord to pay the landlord or the said — the present out-going tenant for all clover or grass seeds sown by the said out-going tenant during the last year of his tenancy if the growth of such last mentioned seeds have not been depastured by cattle or horses. And also if required to purchase at a valuation to be made in the usual way all the hay the produce of the year now last past at a consuming price and also the green crops lime unused and manure now upon the said premises and also to pay for muck carried by the said out-going tenant during the year now past and for any bare fallow that may be dressed for autumn wheat at a fair valuation to be made in the usual way and also [A blank is left here because there might be certain things which a landlord might not choose to charge to an in-coming tenant, for instance, the top-dressing or lime, which will be subject to arrangement.]

The tenant shall execute and deliver to the landlord a counterpart of the said lease, and the said lease and counterpart shall be prepared by the landlord's solicitor, and all expenses attending the preparation and execution of this agreement and of the said lease and counterpart shall be paid by the landlord and tenant in equal proportions.

Provided that if and whenever any dispute or question shall arise between the landlord and tenant touching this agreement or anything herein contained, or the construction thereof, or the rights, duties, or liabilities of either party in connection with the premises, the matter in difference shall be referred to two arbitrators or their umpire, pursuant to and so as with regard to the mode and consequence of the reference, and in all other respects to conform to the provisions in that behalf contained in the Common Law Procedure Act 1854, or any then subsisting statutory modification thereof.

Provided also that these presents are intended to operate as an agreement only, and not as an actual demise of the said premises, or to give the tenant any legal interest therein until the said lease shall be executed.

In witness whereof to one part of this agreement with the landlord remaining the tenant hath set his hand, and to another part with the tenant remaining the landlord hath set his hand, the day and year first above written. [This, gentlemen, is the agreement which I have the honour of submitting to you, and nothing will give me greater pleasure than to hear a very brisk discussion upon it.]

**The CHAIRMAN:** I am afraid that this is an agreement which we shall find very few tenants willing to enter into, and if it were entered into, I fear that few would observe it. However, it is drawn up with ability, and I think the best way of dealing with it is by taking paragraph after paragraph.

**Mr. BISHOP:** If the tenants had an agreement brought here which was thought suitable for the purpose, they would like to have time to consider it.

**Mr. DAVIES (Ystradwaler)** called attention to the clause respecting the killing of rabbits.

**Mr. BISHOP:** I think the tenant should not have the right to kill them until he has given notice to his landlord that they have become injurious.

**Mr. HARVEY:** I have seen instances in which that has not acted satisfactorily, because what the tenants might consider injurious might possibly be anything but that in the landlord's view.

**Mr. BISHOP:** The tenant might give notice that unless

landlord kills them he will, as they are become injurious. Then that would have the effect of inducing the landlord to look into the matter.

Mr. HARVEY: You observe that I do not say anything about killing them with guns; so that there will be no excuse made, out of this clause, for sporting purposes.

Mr. PUXLEY: That is important, because keepers might say the tenants were sporting over the land if they carried guns for the purpose of killing rabbits.

Mr. HARVEY: They can destroy them by ferreting or digging them out.

Mr. BISHOP: I think that if the rabbits were killed without notice being given a bad feeling would be created between landlord and tenant.

Mr. HARVEY: It seems to be the farmer's work to keep them under.

Mr. BISHOP: Oh, I should say destroy them all, as far as that goes.

Mr. PUXLEY: The only fault I find with this agreement is that it is much too long and would lead to law. Tenant-farmers, generally speaking, are not legal men, and would not understand all the clauses. It strikes me that a much simpler agreement might be made by so able a gentleman as Mr. Harvey with much fewer clauses in it. With a good landlord and a good tenant a very simple agreement is required on both sides; but with a bad landlord, a farmer would be a fool to take the farm without a lease. If a lease is wanted, then all these clauses could be put into it; but in mere agreement they are unnecessary. As a matter of fact, those tenants who have signed such agreements as these have never kept a single item; and if you enforce them it would lead you into constant law. I think an agreement binding the tenant to a succession of crops and to keep the buildings in repair would be sufficient. It is of course essential that the land should be properly cropped, and a certain amount of lime and manure used, at all events that the land should not be impoverished. In one section of the second part there is a stipulation that the landlord should be recompensed for repairs not done, but the difficulty is that when some tenants take a farm under agreement to keep the buildings in repair, it simply means that they will let the buildings stand as long as they will, and do nothing to them; but when the roof gets poor, and the place so bad that it can scarcely be repaired at all, they come to the landlord for a new roof. Another reason why in this country a tenant-right is not required, is because building is generally done by the landlord. In Ireland building is done by the tenants. I understand, by this agreement, that the landlord not only does that, but he is bound to keep them in repair. I should think that the tenant ought to keep them in repair, or allow for them. It is rather a defect to oblige the landlord to supply the gates, because the tenant is not bound to keep these in repair. It would be better that the tenant do all the repairs, and allow some margin in the rent for gates; then the tenant will feel an interest in his gates. Whereas, if the landlord is bound to set up gates, and keep them in repair, the tenant feels but little interest in the preservation of them. An agreement such as we require ought to be much shorter.

Mr. BISHOP: As to the length of the agreement which Mr. Harvey thinks necessary, I do not object to it, as it will do no harm to members of my profession, who are generally considered long-winded. Any tenant-farmer who sees this will stare at it for a long time I fancy before he is inclined to sign it. There are many portions of it which will require consideration, because it establishes a new course of things between landlord and tenant, supposing it to be accepted. In that part of the county in which I live there are very few agreements. I have had occasion once or twice in my life to draw up an agreement between a landlord and a tenant, and it has been a matter of surprise to me that any tenant could be found who would sign it. I have always looked upon it as an infernal machine, which in the strongest possible manner binds the tenant in every way that can be invented. I am sorry to see that this one is about as hard upon the tenants as that, for there are stipulations here on both sides which I never yet saw included in any lease—in this country at all events. That being so, I come back to my suggestion that, unless anybody has anything to say to any particular claim, the consideration of it should be adjourned, in order that the members may have it in their possession for some months,

and look over it privately. I should imagine that both landlord and tenant would like to be put on a better footing than they are here. Mr. Harvey has told you that one of the greatest evils in this country is carrying away the produce, and that nothing is more destructive to a farm; but we must remember that, although we have had such a fine summer this year, yet for many years our harvest has not been so forward as this year—nothing like it. In my experience thatching is mostly done by the tenant. Mr. Harvey has drawn a distinction between things paid for by the tenant, and what the farm produces. I have never known an instance on a farm of any size, where the landlord was asked to supply thatch. That would make quite a revolution. It is better that this matter should stand over; for it is very desirable that we should turn it over in our minds. I have no doubt that every landlord and every tenant of any respectability will be anxious to meet half-way, and see whether the agriculture of the county cannot be put on a better footing than it is now. I am almost the oldest man in the room; and I remember that, when I first became acquainted with agricultural matters, about two-thirds of the farms of the county were let under lease; and I am only stating a fact when I say that in every neighbourhood where the farms were let under lease, they were unexceptionably the worst farms in the country. I do not know whether my friend on the right (Mr. Jones, Pennycuod) ever held a lease or not; but Lord Cawdor's and Lord Dynevor's farms were held under leases, so were those on another estate in our neighbourhood. Some of them have fallen in during the last few years; and wherever you heard that a farm was badly managed, you almost invariably found that it was held under an old lease.

Mr. JONES (Pennycuod) said he had held under lease; and when it expired, he had to rise £20 in the rent. The best agreement we could have is to feel confidence in our landlords; and I think my present holding is far better than any lease or agreement.

Mr. D. THOMAS (Derllys): I was quite surprised to hear Mr. Bishop ask Mr. Jones if he had held under a lease, because he is well known to be one of the best farmers in the neighbourhood of Llandilo; and, referring to Mr. Jones as Mr. Bishop did, I think he cast a slur upon him. Well, I only speak judging from the way I took it. Mr. Jones is a pattern for tenant-farmers; and when he left his last farm, he was treated very badly by his landlord.

Mr. BISHOP: I beg to say that I had no intention whatever to cast a slight on Mr. Jones. I hope he won't think I had.

The CHAIRMAN: Mr. Jones is not exactly a tenant-farmer; he is a man of large private property as well.

Mr. D. THOMAS: We look on him as a good specimen of a tenant-farmer. I take it, a tenant-farmer is a man who holds a farm which he does not own. If a man farms his own land, he is a freeholder, or a freehold tenant-farmer, if such a thing can be. Mr. Jones has been a tenant-farmer under Mr. Gulleton; and, from what I have heard, the farm was worked so well that, when his lease was expired, he should not have it without a large increase of rent. That was no encouragement to him.

Dr. DAVIES (Ystradwaler): This agreement is very long. I believe one simple method of getting good farming in this country is to encourage a feeling of confidence in our landlords; but an agreement I view in this light: We treat each other with confidence; but we know we can defy each other at any time to do wrong, because there is an agreement between us. My advice is that ploughing-up should have some protection. It would not always be any profit to a farmer to plough up two or three-year-old lea; and if he had notice to quit, it would be to his advantage not to plough-up, while it would protect his landlord. The landlord could go to the incoming tenant and say, "Now I have allowed so much per acre for the land not to be ploughed; and if you wish to come into my farm, you will hand me over the money which I have paid, and you take the land on the same terms." I believe that would be the sum and substance of keeping a farm in perpetual good order in this country. Ploughing-up land is a great evil in this country.

Mr. J. LEWIS PHILLIPS: I think we are assuming that the landlords are prepared to give leases, but we ought first to ascertain from the landlords what their feelings are on the

subject. We ought to say in effect, "What are you going to do—are you going to give your tenants leases or not?" It will be high time for us to say whether we agree to the lease when the landlords say they are willing to give leases; but the impression on my mind is that not one landlord in five is prepared to give leases at all. At present the system works tolerably well; the tenant pays his rent and works his farm, or is supposed to do so, according to the custom of the country, but unfortunately the custom of the country is variable. In fact very few people know what the custom is, for one man adopts one custom and one another; one man on wet land farms in a certain way, another man on dry land farms in a certain way, and a third on a sheep farm has his peculiar customs too. It therefore seems to me that the landlord should have a specified agreement with each of his tenants, altering each to suit the condition of the land, because you will never find three farms worked alike. Let the landlord show that he has confidence in the tenant, and the tenant will surely show confidence in the landlord, if he is anything at all of a landlord. If you press a tenant to sign an agreement, you will find that you can induce a tenant to sign almost anything; the difficulty is not in getting a tenant to sign an agreement, but to keep it. It would be impolitic to force this agreement on any tenant, because there are many very stringent clauses in it, and if carried out strictly, of course the tenant would have to obey every clause implicitly. On the other hand, if you give a tenant a certain amount of latitude, he will get on better with you and you with him. Selling the produce at consuming prices is not at all fair to the tenant for he has laboured very hard to get that produce which is some of the most valuable commodities he can get off his farm. Moreover, he has improved his farm during the process of growing that produce; he cannot help doing that. I therefore think he ought not to be prevented from carrying it away, and disposing of it in the best market. It is the landlord's business to see that the land is not deteriorated, and if the tenant does his duty in that respect, he ought not to be hindered from doing the best he can with his produce. This agreement is intended to operate as an agreement between tenant and landlord from year to year, but at any time it can be enforced as a lease.

Mr. HARVEY: No, only as a yearly agreement; if you have a lease subsequently granted it may be according to the plan of this agreement. This is the very reason why all these are included.

Mr. LEWIS PHILIPPS: Then I say it is scarcely fair to ask a yearly tenant to keep his premises in repair, for it would, in certain cases, where the place was out of repair for instance, make a large inroad upon the yearly receipts of the farm.

Mr. D. THOMAS: What is the difference between that as an agreement from year to year and a lease?

Mr. HARVEY: An agreement does not give you a legal estate, but a lease does. There is a difference in the stamp.

Mr. D. THOMAS: Oh, then the tenant would have to pay for the stamp.

Mr. HARVEY: No, the landlord and the tenant.

Mr. D. THOMAS: Well, the tenant would have to bear half the expenses.

Mr. MOUSLEY, who was cheered, said—I do not intend going at large into this, because it takes me by surprise. It is a much longer proposal of agreement than I was at all prepared to expect from Mr. Harvey, although, to a very great extent, it is drawn with much skill, and evidently, with an extensive knowledge of the question at issue. I think there is great credit due to Mr. Harvey for the very business-like proposal he has presented; but it is so long, and embraces so much that it would be foolish to attempt to express an opinion upon it off-hand, or rashly, because it is so important a subject. I therefore think we cannot deal with this in a hasty manner, and quite approve of the suggestion that the discussion be taken after we have had three months for a careful study of it. We may then again compare notes. There is a great deal in it that might be safely adopted, but it would be well to strike out some portions of it, thus rendering it more simple, especially to tenant-farmers. But whatever we do we must aim at encouraging mutual confidence between the two interests—the landlord and the tenants. I don't think anybody wishes, nor do I think it possible to encourage a spirit of defiance either on the part of the land-

lord to the tenant, or on the part of the tenant to the landlord. Nothing would be gained by it, if anybody were attempting anything of that kind, which I do not believe they are. Our aim should be to encourage confidence on both sides, to prevent the land from being deteriorated in condition, to give the tenant-farmer every possible chance to make the best of his land, taking care that he does so in a business-like manner. We know there are men who, during the last portion of their tenancy, take unfair liberties with their farms, and that we must guard against. Several matters occurred to me, but it is better to defer it and consider it as a whole than criticise portions of it. I do not know that I shall say more now, than to express my thanks to Mr. Harvey for the great assistance he has given us, and for the business-like proposal he has laid before us.

Mr. LEWIS (Llwynfodwen): What does Mr. Harvey mean by "lime unused?"

Mr. HARVEY: This agreement is intended to provide that the land shall always be in a good state of cultivation. If an outgoing tenant prepares a fallow, the lime of course, will be unused. That he is paid for as stipulated.

Mr. LEWIS: No. 8 of the landlord's covenant says that the tenant shall be allowed for lime top-dressing, if the tenant has not had three years' mowing or grazing. Do you consider three years sufficient to exhaust the benefit of the lime on old lea?

Mr. HARVEY: Yes, I do, for top-dressing.

Mr. LEWIS: Then I don't agree with you. The first year you will have no value from it, the second year you will have a little; and about the fifth year you will have the full benefit of the lime. Of course I am speaking of old lea.

Mr. BRODIE (Ty'rddail): I am sure we all feel much obliged to Mr. Harvey for coming so far, and giving this bone to chew. My feeling, as a practical farmer, is that it does want some chewing. I am sorry I cannot express myself so well as some of these landowners and land agents; but my own idea is, that a good tenant is not a right man in the right place unless he has a lease. You may talk of confidence between landlord and tenant, still a man does feel more independent if he has got a lease; most assuredly he does. No man, even if his landlord was an angel from heaven, can feel independent, unless he has got a lease by him. In the first place, I think a lease should be as simple as possible, and much fewer words used than we generally find in such documents. Next to that, it should be drawn at as small a cost as possible. We don't like to pay £10 or £20 for a lease; it is a thing we decidedly fight shy of. I do not mean anything personal to the lawyers.

Mr. BISHOP: You may depend upon it, it is the best agreement you could have for us, for it will give us a great deal more work than before.

Mr. BRODIE: Then the restrictions should be as little as possible. Give them a tolerable amount of freedom at the first part of the tenancy, but towards the end you could bind them pretty tight. Limit them to not more than two crops—or not more than one if you like towards the last—and is carrying off the hay. There is one clause in Mr. Harvey's agreement about selling hay to the landlord at consuming prices. Now, in a season like this, when we are selling hay at £8 per ton, it would be hard to prevent a tenant from selling it to the best advantage. I see no objection to a tenant selling a certain amount of hay, providing he brings as equivalent to the farm in the shape of manure of some kind. If he could sell his hay at £8 a ton, he could replace it by superphosphate, or something of that kind. An idea strikes me that most people connected with agriculture in this country will agree in saying that it is not a very good occupation. There is too much landed promise—as my agent said to me the other day—and upon my soul I think there is a great deal of truth in it. It does not come to the proof so readily as some think; not anything equal to the best parts of Scotland, or England either. I should advise the landlords not to be too stringent here. (A VOICE: "Oh, it's Liberal times now.") It is well for the tenants to be encouraged to lay out their money on the farm; they do not feel so much inclined to hide it in the thatch of the house when they have got a lease. An objection was made to leases not long ago, on the ground that it encouraged—"exhausters," I think they called them—in going on to land. I see they are calling them vamps now. My impression is that a good lease would have a ten-

dency to effect a most important change in the agriculture of the country, because it would bind them as to the use of the land. I agree with those gentlemen who think we want something like three months to digest it.

Mr. J. B. BOWEN, M.P.: I never intended saying a word on this occasion, but I have listened very attentively to all the discussion, and agree with it to a great extent. The point that has puzzled me is, what is this? Is it a lease, or simply a yearly agreement? Mr. Harvey explains that it is a yearly agreement convertible into a lease when the tenant and landlord seem inclined to pay for the extra stamp. As a lease, a great deal might do very well; but a simple yearly agreement—and unless a tenant intended to convert it very soon into a lease—there seems to me a little too much of it. During the next three months it will be easy to arrange some simpler form. I agree to all that has been said with regard to the talent with which this is got up. I have seen several of this kind of agreement spoken very highly of in the *Royal Agricultural Society's Journal*. I feel satisfied that in the course of three months we should be able to produce a simple yearly agreement between two persons who have no intention to do anything in the way of a lease.

Mr. HARVEY: It seems to be the very general opinion of this meeting that we should adjourn, in order to calmly consider this agreement. I shall not trouble you with very many words in defence of it, except simply to say this, that it is strictly an agreement from year to year, which may be converted into a lease. Mr. Bowen, I daresay, fully understands the distinction between the agreement and the lease. If it is executed by deed it gives the tenant a legal interest in the land, but a simple agreement does not. I do not, from my experience, and I have drawn up a great many agreements, think that it is practicable without all these provisions. I do not think that it can be done. If you have an agreement, let it embody everything. There should never be left room for either landlord or tenant to say "Oh, I understood you to mean this, or mean that." Paper is cheap, and so is ink, so you had better include everything in a good and comprehensive agreement. I certainly did not expect the tenants would make any objection to this, because if anything, it goes rather against the landlords. I maintain that the covenants on the part of the tenant are as simple as possible. He pays the rent, the tithe rent-charge; he is to keep in repair (the landlord finding materials to consume produce on the land, not to plough up any fields which are provisionally agreed shall not be ploughed, not to have at any time of the year, above a certain amount of land under tillage, not to take more than two successive crops, not to carry off any hay, &c.—of course if a man lives near a market where hay is sold at a highly remunerative price, I do not see why some little arrangement may not be made to meet that. Then he is not to plough any pasture land after having notice to quit, to sow clover and grass every year, and not depasture with horses or cattle, to permit inspection of the premises and land, to sell all the produce, if required, at a fair valuation. Green crops in such a season as this would require exceptional treatment, but in a good season the valuers could take the crop as it stood. I should like to know what any reasonable tenant can object to in this.

Mr. MOUSEY: Do you think it would be practicable for the landlord to purchase the crop?

Mr. HARVEY: It is at his own option. He may give notice in December that he will purchase, but he does not, the outgoing tenant has the use of the barn and the haggard, to thrash his corn, for three months. He leaves the straw behind.

Mr. BISHOP: What is he to keep the cattle on from December to May? He is to thrash out the corn, and leave the straw.

Mr. HARVEY: He has three months to thrash it in.

Mr. BISHOP: Yes; but what can he do with his cattle?

Mr. HARVEY: He can sell them off; but, of course, when a man changes a farm, he takes his cattle with him.

Mr. BISHOP: Suppose he keeps the cattle alive, what is he to do with them?

Mr. HARVEY: Well, it is to be hoped he will go to a farm which will be under the same agreement as this. We hope an agreement will be generally adopted by all landowners.

Mr. D. THOMAS: You say he ought to be paid for the tillage of green crops; but such a year as this would be an exceptional year for green crops.

Mr. JONES (Penycod): It appears that you bind the tenant to sell, but not the landlord to purchase.

Mr. HARVEY: Yes, supposing the landlord gives notice; but we bind him to do that. The custom as to the things in this county differs from Pembrokeshire.

Mr. D. THOMAS: Suppose one tenant has no green crops, and another has a good crop.

Mr. HARVEY: Well, the values will settle all that. After answering several other questions from Mr. Mousley and others, on subjects to which he had alluded before, he went on to say that he concurred in the proposed adjournment. The agreement was one from year to year which he had been asked to produce, and a good lea could receive the attention of the Chamber on another occasion. The tenants' covenants were such that it was impossible to do away with them. [A voice: "Repairs."] Well, the repairs were fairly dealt with; the tenants doing labour, the landlord finding materials. The tenant ought not to find fault with that, but be made obliged for such a clause. The landlord would be the more likely to find fault with that. The landlord was bound by this agreement to ensure and rebuild in case of fire. The landlord found timber and slates, and allowed tenants to destroy rabbits: he purchased certain things at a valuation, and allowed for draining and top-dressing. If they took away the necessary verbiage, the agreement was as simple as possible.

The CHAIRMAN: You do not say anything about artificial manure.

Mr. D. THOMAS (Derllys) said that, as a member of the Chamber, he was entitled to claim a hearing. He came intending to read a form of agreement which he called a tenant-right, but from what he had heard they now seem to be patronizers of landlord's right. ["O dear no."] The agreement was from year to year; but unless a little more confidence was felt in tenants than to trust them with an agreement only lasting for a year, they could never expect the tenant to farm the land in a proper and profitable manner. Mr. Bishop had said that the farms held under old leases were foul and badly worked; but that was accounted for by the fact that if a tenant improved his farm he was expected to pay a much higher rent, and therefore he was afraid to farm as well as he might.

The CHAIRMAN: I am afraid you are speaking out of order, sir. It is a question of adjournment.

Mr. BISHOP: If Mr. Thomas has an agreement to show, it is fair that we should hear what his idea of a lease is.

Mr. THOMAS: I have it in my pocket, but I will not produce it now. I will read it three months hence.

Mr. BRODIE: I trust that Mr. Harvey will come up again to the next meeting.

Mr. HARVEY: O I shall be very happy to come again.

An amalgamation of the counties of Cardigan and Pembrokeshire with the county of Carmarthen for the purposes of a Chamber of Agriculture was then agreed to.

**CLOVER AS A FERTILIZER.**—You have frequently recommended stocking down lands with clover as the best and cheapest means of renovating worn-out soils, where manure could not be obtained. It has for many years been my practice to turn over green sward, if a loam soil plough deep, and sow it to oats, though rye is better to stock after, and sow on a bountiful supply of the largest kind of clover, and plaster, and the feed will be increased 200 to 300 per cent. Timothy seed should be sown with the clover to assist in making a good sward after the clover runs out. It is well understood that clover runs its roots down much deeper and has a larger root than any kind of grass. I never knew the roots of clover would run as deep as they do, till a few days ago my son was digging a hole where an old field had been put down to meadow four years; he noticed a clover root running very deeply, and took particular pains to take it out and measure it. Its length was 2 feet 8 inches; that was not the whole root, as the small fibres broke off. I send you the root to show what amount of manure may be produced on an acre of land. The land on which this clover grew was naturally a fertile soil. It has been cultivated nearly or quite one hundred years. Limestone crops out occasionally. It has been well manured when ploughed, which has been done on an average once in 6 or 8 years—first planted to corn, then to oats or wheat, and then stocked to clover and timothy.—JOHN S. PETTIBONE, in *Cultivator*. Manchester, *Vt.*, Aug. 27, 1868.



## THE NEW FARM.

I have not been able to lay hands yet upon Drury's quaint work, so cannot this week give the exact mode which he recommends of utilizing wheat-straw. But as I must find it for my own use, I shall make the bailiff, who I suspect never returned it to my hands, have another rout out of his literary stores.

Assuredly, the labour of collecting leaves in this country to be stored to help out our winter fodder could never pay, considering the price of labour, the thinness of the crop, and the damage that would probably ensue to the tree itself from being over-flagellated.

The hint given us that it is beneficial to the plant to pluck off all the mangold-wurtzel leaves that touch the soil, for present use, I am acting vigorously upon. They considerably supplement the contents of the pig-wash tub, and are greedily devoured by the dairy cows.

The gorse sprouts upon the adjoining hillside I intend using so far as they will go. I shall crush them between the stones of a cider mill, and then chaff them with a certain proportion of hay and straw, adding a good pinch of salt, an ingredient essential to prevent the hair falling off the fed animals, should they partake too freely of this prickly salad.

Old Melon has just summoned me to view the blossoms of two more of our hybrid pelargonium seedlings. Astonishing is the variety produced from the same ovary; some of the produce throwing back in tint to either parent; some representing the two combined; some going far away to the commonest old-fashioned strains. It is an occupation that I shall not pursue any further. Far more satisfactory is it to go into the professional florist's houses, and take your pick in an assortment of plants upon the verge of flowering, at a shilling a head.

Another experiment has resulted capitally, and encourages me to repeat it, as well because it relieves the hurry of spring-work, as that it enables one to turn what were otherwise waste to account. During October and November last year, following the directions of an able essay in the *Royal Agricultural Journal*, I planted at a depth of nine to ten inches a quantity of diseased potatoes. It was scarcely a fair trial, because all the larger ones had been used for the pigs, and what we picked for seed were extremely small, and had lain in a heap under straw very thickly strewn, awaiting their turn for conversion into a mash with meal for the fattening fowls. Everyone upon the farm was against me, and thought me simply soft, when I proceeded to give directions and superintend, as I felt I must personally, the planting.

It was all I could do to get the furrows opened deep enough, and the sets covered to a gauge of over nine inches. They were planted, without manure of any sort, upon a wheat stubble, the wheat having followed an old ley well manured before ploughing. The spring-sown potatoes I put in about five inches deep, the soil having been limed for their reception. The autumn-sown were so long in making their appearance after the spring-sown were up, that I was almost afraid they would never show, and that I should be beaten after all; eventually they came, with many gaps I must allow, but then the seed was very far gone in rottenness, and diminutive into the bargain. They were dead-ripe a fortnight since, and we have used a great quantity of them. Mr. Melon is very pleased, and says that he has not found a single bad potato at any root. The only thing is, that they are beginning to throw-out little ones; but this is the pretty universal

complaint of all growers this anomalous season. I requested him to bring me the bunch off a fair average plant; he did so, and I weighed them (they numbered fourteen potatoes, four being remarkably fine) the morning after drawing, for he had kept them (not seeing me) in the tool-house: they weighed 2 lb. 5 oz., good. The parent had mouldered away into dust. I got him then to raise me as good a sample as he could find of the spring-planted. The produce I kept the same number of hours that the others were out of the ground before weighing. There were nine tubers, none so fine as the other lot, and the aggregate weight was 1 lb. 7 oz. This year has of course been an exceptional year, and the drought was disadvantageous to the spring-sets, buried as they were only about five inches; but, on the other hand, it is to be remembered that they had the advantage of lime to keep their skins cool. I am so encouraged by the experiment that, as I take my crop up this year, I shall deposit fresh, in drills already prepared, all the large-sized diseased tubers that we come across, and cover them with nine inches of mould. A great authority pronounces that no potatoes are ever diseased over which six inches of soil are kept by repeated earthing-up; he also says that the disease hits the haulm just at the back of the neck, and that repeated high earthing-up baffles the assault of the blight as it sweeps by. The rationale of planting diseased potatoes is this: They are calculated to clear themselves, under the soil, of the morbid matter which is in an advanced stage when they are planted; whereas, no potato now-a-days being trustworthy, the great proportion of the so-called sound sets have in them the undeveloped seeds of mischief, which they perpetuate in their produce. But of potatoes enough, most excellent esculent as it is in its place.

To change the subject, I was rather surprised at Leicester to be asked by one of our leading English agriculturists whether I used a donkey upon the farm. "Heaven!" I replied, "I should think I did, of all sizes and all ages." On further parley, however, I found that he did not use the word metaphorically, but literally—that seriously he meant to inquire whether I had a real individual of the *Asinus vulgaris* amidst the beasts of burden upon the farm. He said he could never do without one. A donkey-cart is so handy for everyone to use for a multitude of services, to perform which one might grudge to break a team. The best he ever knew was at the beck and call of every man, woman, and child upon the estate who could justify its use, and when done with was accustomed to be turned off at the nearest point to the homestead, when it would set off full canter, and not stop until it had backed its vehicle carefully into the cart-house, waiting quietly there until some one might pass by and release it, when, with a flourish of his tail and a sidy side-kick, he would canter off to browse. I was fascinated by this idea, and have been upon the look-out ever since—as yet without luck.

The river being full after the recent rains, we went out for a sail yesterday afternoon, and at a bend of the stream came across a beautiful small gull hovering and dipping after the fry, not regarding our presence in the least. I have looked Yarell over, and, so far as I can make out, it was one of the "kiltiwakes," in whose behalf a recent protest has been made. It is astonishing how little the birds regard us upon the water! Not only does the heron walk contemptuously within fair pea-rifle reach, but the hawk

come sailing close overhead from a rock in which they build, and the pigeons wing their rapid way from the corn-fields to the wood not a dozen yards above or before us. I see that our little Dandy is pacing the hall, nursing a nearly-fledged turtle-dove to which he lays claim, having discovered the nest in a filbert-bush close to the house. He was to have had the pair, but one has disappeared from its shaky twig platform—by courtesy, nest. The young Joseph's theory is that their mamma takes them out one at a time, and he proposes to restore this one to the nest, in the hope of obtaining the two after dark.

The lodge chimney went on fire yesterday, and great was the consternation of the inhabitants. By dint of energetic efforts, however, it was soon put out, but not before some dozens of hornets came wheeling angrily about the heads of all engaged. They have a nest beneath the tiles, which will have to be taken somehow. We have long noticed an extra abundance of the plague about, and especially upon a young elm, which, whether it has burst itself by over-feeding or not, has anyhow great rents in its bark, through which a sweet-tasted candied-looking sap oozes, reminding one of the Canadian sugar maple. This tree was discovered by the small boys, and for some days, until I discovered their proceeding, formed a sort of post-prandial hunting ground, whereon they laughed by the dozen, with well-aimed blows of a hazel wand, great blue-bottles, wasps, and hornets. We have been very busy putting in trifolium and rye-grass on the stubbles, and mustard where the turnips failed.

It has long been a case of "Call me early, mother dear," with the swedes, and I expect they will now do but little good. If they persevere in their backwardness I shall simply replough, the land being clean and richly manured, and plant wheat when the season comes. "I dare not do such a thing," said my gallant neighbour: "I should have all my tenants following my example." "Another sad consequence of being an extensive landed proprietor," I reply; but surely, the farmer can only recoup himself for losses by a judicious ringing of changes? Anyhow, "I'll have a try if I lose my place," as the old song says. VIGIL.

And so to-morrow's the First! and if I don't write to-night I know I shall never write again this week; but I'm so dull at present that I don't know which is likely to be the less killing—midnight article or October gun.

"Now then, Jerusalem!" as with horror I heard myself, as I thought, addressed by a dashing, young, and most self-impressed Bobby, of A. I. area character I doubt not, as I was sauntering down the paved walk before a series of cattle-houses at a recent Shorthorn sale, and looking over the half-doors at the occasional animal within. However, the address was not for me, but for a white and most intelligent moke, who was also sauntering down the walk (there being a scent of hay at the far corner), and who at once, upon being called to in this unceremonious way, put himself half-round into a repulsive position that astonished his uniform acquaintance, and made the bold policeman shrink closely to the opposite wall, being balked thereby of the cowardly poke he had intended with his staff for the poor brute's unoffending ribs. A victory to be scored for the donkey! He was not for sale, or I should have gladly picked up so shrewd a specimen for the farm labours, which I learnt at Leicester can be so successfully performed upon a farm by this, so often abused, beast of burden.

There is a small one—a most tiny specimen—in our village, belonging to the native Vulcan, and which was won by him in a raffle; but for this one I feel ashamed to offer any price that might tempt to the dissolution of a union such as exists between him and Vulcan minor.

This last youth is a great, strong, stout fellow, whom it is a wonder to me that the oppressed animal can draw at all, as he does notwithstanding, at a tearing gallop up-hill and down-hill, and often with a load of iron rods upon the cart, in addition to his human load. The other day I employed him to convey my Abyssinian pump and tackle down to a meadow, where I wished to try it. In getting there he missed the gateway, whereupon the lad jumped off, and, with a cheer to his ally in the shafts, and a push at the cart-wheel, sent the whole safely, but shaken, over a deep wide ditch, with a steep bank on the further side, in a style that I can only imagine equalled by Penn's artillery when at Aldershot, as I heard from a brother-officer of his. That gallant officer (whose intelligent daring found at last fair scope in the late expedition against Theodore) made his troop charge, and clear too, quite sufficiently to render the feat a thorough success, a fence that had made the cavalry draw rein.

This village moke of ours is a household word with our children; for it will drink beer out of a cup at young Vulcan's command, and will rest its fore-feet upon his shoulders, looking him most sympathetically in the face the meanwhile. It will also lie down when he lays hold threateningly of its forelegs. We all pet it. I allow it the run of my hedge-rows. It has its lodging in a pig-stye. It amuses me often. It seems to reason so.

I am reminded that my Norton's pump arrived duly, and we have had the greatest possible amusement in trying all sorts of spots that we fancied likely to yield water upon the farm. Unfortunately, above the house, where I am anxious to establish a spring, we came incessantly upon rock, and have had to knock up the tube and adjourn. In one place certainly we hit a crevice, a fact that was indicated by the tubes persistently taking an oblique direction under influence of the blows of the monkey, and getting full of water some feet in depth. However, when we screwed the pump on it would not work, and I have since found that we had got into a pocket of clay, wherein it is difficult to establish a well after this patent. But get into a sandbed and it's rare fun. I have just been examining the settlement of colouring matter in a tumbler full of thick water that we pumped out of a new place just before dark. There is an inch of water, clear and bright enough, resting on a stratum of the oiliest looking marl, and beneath the marl a stratum of beautifully fine and extremely keen sand, almost too fine I fear. The sand we desire to strike is of about partridge shot size. I have already had fifteen pounds worth of gratification afforded me by that £7 purchase, and there's a lot more coming.

The results of our various experiments, whether they turned out for better or worse, it is right we should record. The swede crop that I had intended ploughing up has begun to spring in earnest, so that we hope we shall have a sufficient quantity to prevent our playing tricks with the regular course of cropping. The mangold wurzel has swelled grandly of late, and I shall have a really good weighty yield; but it is curious that a few of Sutton's champion swedes, the seed of which got deposited with the mangold-seed in May, although showing a fine bunch of leaves, have at base only a tough long thin radish-shaped bulb, showing to my mind that there has been something anomalous in the climate of the past season, especially as regards that mainstay of the homestead. The ground was damp enough, and there was plenty of wet hearty muck put underneath; still, amidst mangold roots of real grandeur for this year (for it so happens that these swedes are situated in the best portion of the wurzel crop), the turnip has failed to develop any succulent growth. It is a withered wizen-shaped and mildewy specimen, suffering from what in the Eastern Counties they so appropriately term "the dry stunt."

Respecting these mangold wurzel, it is worth noting that where the women searched for the larvae of the darts moth the plants are smaller and weaker than in the portion of the field which was let alone, out of pure weariness at the apparently endless labour. Query, have I lost or gained by that outlay?

I certainly saved several hundreds of plants from being gnawed clean through, but is not the general bulk of the yield lessened by such tampering with the root fibres during the plant's infancy? treatment which at the time not I alone predicted would be beneficial to its growth, inasmuch as it seemed to pulverize the soil about the seedling so thoroughly. There is one circumstance about the field that puzzles me. In a slight hollow, situated about three parts down the enclosure, the marl-bed comes rather near the surface, and the rain-water lodges somewhat there. The fallow was consequently knobby in this part when worked in preparation for roots, and so rough when we sowed that we [despaired of seeing any come up at all. They certainly long delayed putting in an appearance, and came thin when they did come; but the bulbs that are there are far the finest in the whole field, and would be respectable any season. Possibly the oily juice of the marl may suit their taste, or the knobs may have afforded them such a wholesome shade from wet and sun, as Jonah found in his gourd. A lumpy fallow is propitious to young wheat we know, possibly in consideration of the shelter it lends, or of the fresh suck it allows the spreading rootlets with every shower. I have at last found out how that industrious dear little Dutch clover manages to make itself an establishment in my pasture, that is abused either by excessive draining or extraordinary sun heat, as this summer, or by the rigid cutting of the lawn-mower; and which once attained it manages to maintain through the wide spread of its fibrous roots. I learnt this lesson on our slopes this year, They were absolutely burnt up like King Alfred's cakes, or a fox's tail (?) shall I say: so burnt that we all, fat Melon included, gave them up as lost to life. Even these darling little plants found it impossible to spring in extended growth. They were content, or obliged to set each one stem over his root-bed just as you see the Alpine marmot do before the mouth of his burrow in the nursery books on natural history; but, then, whether or not from want of exercise in having their Oranges so restricted, and a consequent concentration of juices, they indulged all in a most dowager-like tiara of seed pods, the contents of which in due season fell so thickly as to defy the birds, who I dare say got tired of their monotonous diet, preferring the flesh-pots of an adjoining wild cherry, especially in one spot, along the line of a house-drain, where the sward was simply reduced to a sepia ringe, they lay thick as comfits on a confectioner's window-advertisement-cake's sugar roof, or (to set our metaphor in unison with the season)

"As autumn leaves that strow the brooks  
In Vallambrosa, where the Etrurian shades  
High over-arch'd embower."

Any how, this abundance of shed-seed took advantage of the first shower to vegetate, and the lawn is now one carpet of tiny heart-shaped and round leaves. I argue

thus then: the robber, the sheep's-tooth, the lawnmower, all cut so close or bruise the swollen limbs of the coarser grasses so (intensive heat again being adverse to their swelling at all) that something approaching to mortification ensues, or, if not quite that, at least considerable contusion; such as sends them into hospital, compulsory confinement, of which the smaller plants take advantage, so as to have its little strut upon the stage of life.

I have been obliged to write at a gallop, as the hour of shooting approaches, an exercise to which I am rendered almost averse, by the dumb expostulation of some half-dozen young pheasants that have flown up just now to be fed at my study window. The nest was cut over by the mowers in a meadow, and the hatching was carried out by a half-bred Lucknow bantam, which, possibly, from its half-wild Indian tastes and tendency, stuck more affectionately to its strange offspring than I ever knew a barn-door fowl do before. Every evening, when they had grown quite as big as herself, they used to fly up and perch upon a pole we fixed across a coach-house, and every morning she brought them round to our lawn windows to be fed, until one day there was great consternation in the nursery. The naughty hen had joined the Lucknow cock, (a very handsome young fellow I can tell you too), and was gone into the fowl-house, deserting the poor little pheasants, as our "Dandy" explained, with a pitiful elongation of the word *poor*, that could be due only to his remembrance of the tale of "the babes in wood," or some such sad recital. Of course, I was pulled no less volens to see, and there sure enough was one young pheasant already missing, and the others kept jumping off their perch, and wandering about with most plaintive cries. The "naughty hen" was twice brought back by a youngster, who braved the fleas of the poultry-house, but all to no purpose. She deserted them again the moment we had receded out of sight. Later on, too, at the hour of retiring, to our consternation, we found not a single individual, hen or pheasant, upon the perch, and so we gave them up as lost. In the morning, however, they assembled by the window to be fed, but indulging in sad notes, such as are appropriate to being first sent to a boarding school from the mother's lap, and since then they have found a roosting place somewhere in the woods; coming about the house however the day through. The young cock's voices are breaking fast (they were a late hatch, and are only assuming their bright attire now), and it seems to me that the hen could understand them no longer. Else why be so spiteful to them as she now is, pecking them away if they ever venture to approach and feed in the stable yard, whether it be that she thinks them great idle things that ought now to be finding their own livelihood, or that she is ashamed of owning such a gipsy lot in the presence of gay Chanticleer, for of course, in the recesses of her mind, she is ignorant however she came to hatch a brood so diverse to what she expected. Anyhow I am puzzled by her demeanour, which overlays a great mine of philosophical thought, and the children puzzle me even further by their enquiries.

But my sands are out, and the breakfast bell rings.  
*Au revoir.* VIGIL.

## LOCAL TAXATION.

A meeting of the Somerset Chamber of Agriculture and County Association of Ratepayers was held on Sept. 30th. The requisitionists "feeling the great importance of the subjects discussed by the chambers relating to local taxation and that in order to secure the attention of Parliament to inequalities in taxation and other grievances, nothing could be of

greater importance than the largest possible combination of ratepayers in active co-operation," begged to request the committee to hold a meeting at Frome for the furtherance of these objects. In consequence of this, being the "great market" of the town was unusually full, and the meeting was crowded.

The chair was filled by the Marquis of Bath, who is open-

ing the proceedings referred to the inequality that at present exists in the local taxation of the country, and heartily supported this association in its wise and just proposal, that personal as well as real property should bear its fair proportion of the burdens incident to the relief of the poor and other subject matters of taxation.

Mr. H. J. ANDREWS (Hon. Secretary), proposed "That this meeting gives its cordial and active support to the Somerset Chamber and County Association of Ratepayers, especially in their appeal against the unfair exemption from the poor-rate assessment of incomes arising from personal property." This was collaterally and indirectly a question for the landlords, but the incidence of local taxation was especially and immediately a burden upon the tenant farmers. Quoting from the last report of the Poor-law Commissioners, he said the poor-rate had increased by £1,000,000 during the last year, which the occupiers had had to pay, but as yet the landlords had not been affected by the gradual advance. When the time arrived for the re-letting the property, it would no doubt be felt by the owners, but at present it was essentially a tenant's question.

Mr. OLIVER (Frome) seconded the resolution, which was carried unanimously.

Mr. J. F. PARSONS (Wolverton) then moved: "That in 1865-7, according to Parliamentary returns, the annual income assessed to the income-tax in England and Wales amounted to £296,000,000, that only £94,000,000 of it is included in the poor-rate assessment, under which a tax of £10,000,000 is annually levied, and therefore the assessment question is one of the most important now before Chambers of Agriculture."

Mr. J. CARD (Norton Ferris) seconded the resolution, which was carried by acclamation.

Sir EDWARD STRACHEY, Bart., proposed: "That the relief of the poor is, without doubt, a national object and a national duty, and therefore all incomes ought to contribute to it."

The resolution was seconded by Mr. E. A. FREEMAN (Wells) and carried.

Capt. WICKHAM (Frome) moved: "That the exemption from the poor-rate assessment of £200,000,000 of annual in-

come is unjust, and requires the serious attention of Parliament with a view to its removal."

The Rev. Preb. MILWARD (Bristol) seconded the resolution, which was carried.

Mr. JARVIS (Kilminster) proposed, and Mr. J. J. TRASK, jun. (Yeovil), seconded: "That, subject to such exemption at the bottom of the scale of income as Parliament may determine, the only available mode of adjustment is the assessment of all income to a common fund for the purposes to which the money raised under the name of poor-rate is now applied in England and Wales."

Mr. H. GEORGE ANDREWS explained, in answer to Colonel Paget and Lord Cork, that the Association did not intend to put forward their own remedy as an imperative one, but that in the event of the House of Commons devising something better this would be withdrawn.

The resolution was carried.

Mr. CRUTTWELL (Frome) moved: "That, in the opinion of this meeting, individual ratepayers, parish vestries, Boards of Guardians, grand juries, and magistrates in Quarter Sessions assembled, may with propriety discuss this important question previous to the impending general election, and combine to bring their united influence to bear upon it; that the Committee send copies of the foregoing resolutions to candidates for the representation of the several divisions and Parliamentary boroughs in the county of Somerset, and respectfully solicit an expression of their views on a question in which the electors generally are deeply interested as ratepayers in the form of replies to questions sanctioned by the Council of the Central Chamber of Agriculture on the 22nd of September."

Mr. THOMAS BAKER (Othry) seconded the motion, which was carried unanimously.

Mr. RUSSELL DUCKWORTH, J.P., moved, and Mr. R. NEVILLE GRENVILLE, M.P., seconded: "That the question is at present free from party politics, and should be so kept."

The motion was carried amidst laughter and cheering.

The proceedings closed with votes of thanks to the Chairman and Secretary.

## BATH AND WEST OF ENGLAND SOCIETY AND SOUTHERN COUNTIES ASSOCIATION.

The usual monthly meeting of the Council of this Society was held at Yeovil, on Tuesday, Sept. 29, under the Presidency of the Earl of Carnarvon. There were also present Viscount Sidmouth, the Hon. and Rev. S. Best, Messrs. T. D. Acland, M.P., H. Genge Andrews, R. G. Badcock, R. Bremridge, R. H. Bush, T. Danger, T. Duckham, Mark Farrant, Henry Fookes, John Gray, John D. Hancock, J. Webb King, J. E. Knollys, H. A. F. Luttrell, H. Middleton, R. Neville-Grenville, M.P., R. H. Paget, M.P., J. Rawlence, W. Ridgen, E. Ayshford Sanford, Herbert Williams, H. Spackman (Official Superintendent), and Josiah Goodwin (Secretary and Editor).

The following are the appointments for the ensuing year, concluding with the Southampton Meeting.

**PUBLICATION COMMITTEE.**—Mr. T. D. Acland, M.P., Hon. and Rev. S. Best, Mr. F. W. Dymond, Mr. G. S. Poole, and Lord Portman.

**FINANCE.**—Mr. G. S. Poole (Chairman), Mr. J. C. Ramsden, Mr. H. Williams, and Mr. R. Meade King.

**STOCK PRIZE-SHEET.**—Colonel Luttrell (Chairman), Mr. Thomas Danger, Mr. J. T. Davy, Mr. T. Duckham, Mr. M. Farrant, Mr. Henry Fookes, Mr. John Fry, Mr. C. Gordon, Mr. John Gray, Mr. James Hole, Mr. T. Hussey, Mr. J. Webb King, Mr. E. F. Mills, Mr. W. Ridgen, and Mr. J. S. Turner.

**IMPLEMENT REGULATIONS.**—Mr. J. E. Knollys (Chairman), Mr. Mark Farrant, Mr. W. Froude, Mr. John Gray, Mr. Jonathan Gray, Col. Deedes, and Mr. H. P. Jones.

**JUDGES' SELECTION.**—Mr. H. Fookes, Mr. John Gray, Mr. C. Gordon, Mr. Thomas Hussey, Lieut.-Col. Luttrell, Lieut.-Col. Lennard, and Mr. Wippell.

**RAILWAY ARRANGEMENTS.**—Lieut.-Col. Brent, Mr. W. Adair Bruce, Sir M. Lopes, Bart., M.P., and Mr. S. Pitman.

**DISQUALIFYING COMMITTEE.**—The Stewards of Stock, the Stewards of Horses, and Mr. John Grey.

**ARTS AND MANUFACTURES.**—Mr. E. S. Drews (Chairman), Mr. T. D. Acland, M.P. (Vice-Chairman), the Hon. and Rev.

S. Best, Lieutenant-Colonel Brent, Mr. J. Daw, Mr. R. R. M. Daw, Sir J. T. B. Duckworth, Bart., Mr. Jonathan Gray, Right Hon. Sir S. H. Northcote, Bart., M.P., Rev. T. Phillpotts, Mr. S. Pitman, Mr. J. Woolcombe Sillifant, Mr. P. P. Smith, Mr. R. J. Spiers, Mr. J. R. Stebbing (Mayor of Southampton, 1887-88), and J. W. Walrond, M.P.

**STEWARDS OF IMPLEMENTS (YARD).**—Mr. John Gray and Mr. W. Froude.

**STEWARDS OF IMPLEMENTS (FIELD).**—Mr. J. E. Knollys and Mr. H. P. Jones.

**STEWARDS OF STOCK.**—Mr. H. Fookes, Mr. J. Hole, Mr. John Fry, and Mr. J. S. Turner.

**STEWARDS OF HORSES.**—Mr. C. Gordon and Colonel Luttrell.

**STEWARDS OF POULTRY.**—Lieutenant-Colonel Brent and Mr. R. H. Bush.

**STEWARDS OF HORTICULTURE.**—Rev. T. Phillpotts.

**STEWARDS OF MUSIC.**—Mr. Jonathan Gray.

**STEWARDS OF LIBRARY.**—Mr. Jonathan Gray and Mr. William Thompson.

**STEWARDS OF PLANT.**—Mr. John Gray, Mr. Jonathan Gray, Mr. J. E. Knollys, and Mr. Herbert Williams.

**STEWARDS OF ARRANGEMENTS.**—Mr. John Gray and Mr. Jonathan Gray.

**HONORARY SECRETARY.**—Mr. H. St. John Maule.

**ARTS HONORARY SECRETARY.**—Mr. R. R. M. Daw.

**TREASURERS.**—Mr. B. Badcock and Mr. F. W. Dymond.

**OFFICIAL SUPERINTENDENT.**—Mr. H. Spackman.

**OFFICIAL ACCOUNTANT.**—Mr. William Smith.

**CONSULTING CHEMIST.**—Dr. Augustus Voelcker.

**VETERINARY INSPECTOR.**—Professor Brown.

**ASSISTANT-SECRETARY (EXETER).**—Mr. W. Roberts.

**SECRETARY AND EDITOR OF JOURNAL.**—Mr. Josiah Goodwin.

The Secretary having reported the occurrence of a vacancy

in Council for the Eastern district, owing to the death of Mr. Jacob Henry Cotterell, of Bath, Mr. Acland, M.P., took the opportunity of eulogising his high character and the eminent services rendered by him as a member of the Journal Committee.

On the motion of Mr. Neville Grenville, M.P., seconded by Mr. John Gray, the vacancy in the Council occasioned by the lamented death of Mr. W. R. Hicks, of Bodmin, was filled by the election of the Hon. and Rev. John Townsend Boscawen, of Lamortan, Truro.

**SOUTHAMPTON MEETING, 1869.**—The Stock prize-sheet for this meeting was brought up by Colonel Luttrell, chairman of the Committee, and finally approved by the Council. In the offer of prizes Devon, Shorthorn, and Hereford cattle are placed on the same footing as at the Falmouth meeting; but as the county of Sussex is now an integral part of the Society's territory, it was resolved that the Sussex breed of cattle be recognised by the Society as an established breed, with the same number and amount of prizes as offered for Devons, Shorthorns, and Herefords. Channel Islands cattle have also, for the first time, three classes assigned to them in the Society's prize-sheet, whilst separate classes are opened for Shropshire sheep

and Oxfordshire Downs. In order that the practice of the Society may be assimilated to that of the Royal Agricultural Society, it was also resolved that the time for shearing should be altered from on or after the 1st of May to "on or after the 1st of April."

The Poultry prize-sheet presented by Mr. R. H. Bush was also approved by the Council, the amount offered in prizes being £150; Mr. Bush expressing a hope that some special prizes may be offered by the Southampton Local Committee.

**THE SOCIETY'S JOURNAL.**—A motion introduced by Mr. Herbert Williams, having reference to the *Journal*, was withdrawn by that gentleman, on the understanding that, after the present year, the *Journal* will be published half-yearly instead of annually.

A motion limiting the number of complimentary tickets issued at the annual meetings of the Society was carried *nem. con.*

The following new members were elected: Mr. William Neal, Yew Tree Farm, Yeovil; Mr. T. Sharland, Three Choughs Hotel, Yeovil; Mr. John Barton, Hackwood Farm, Basingstoke; and Mr. James Howard Baller, Downes, Crediton.

## THE PARIS EXHIBITION.

### NOTES ON SOME OF ITS NOVELTIES.

The latter part of our last paper was taken up with a very brief *resumé* of the advantages, or some of them, obtainable by the use of covered dung-courts or pits, and concluded with a statement that, when we illustrated one of these improved appliances to a farmery, we should offer a few remarks still further, bearing upon these advantages. We begin, then, by illustrating, in figs. 1, 2,

and 3, a covered dung pit, as built upon the farm of Baron Peers, near Bruges, in Belgium, a plan of which was exhibited in the Belgian department of the Paris Exhibition. Fig. 1 is a plan; fig. 2, a side elevation; and fig. 3, a cross section. The following is a *resumé* of the Baron's own description of its features, and statement of its advantages:

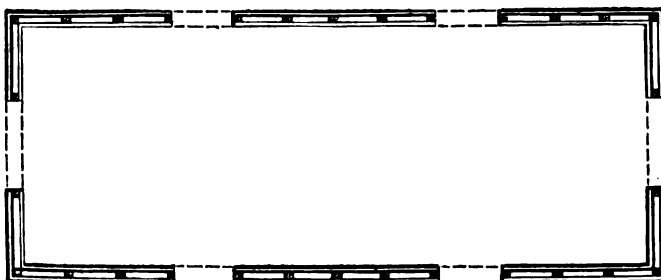


Fig. 1.

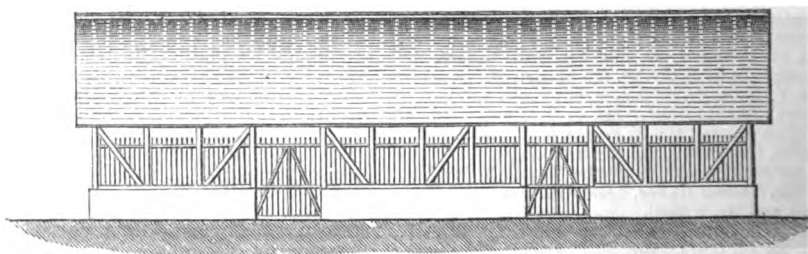


Fig. 2.

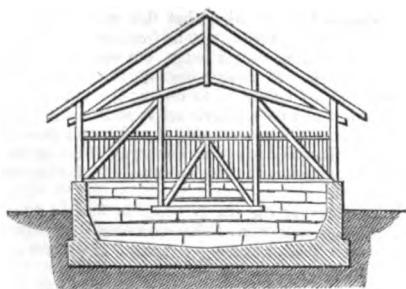


Fig. 3.

The covered dung pit—"fumier covert"—as shown by the plan in fig. 1, is longer than it is broad; and the dimensions are proportioned to the number of stock kept. The earth is dug out to a depth from three feet to four feet, according to circumstances of soil and locality. This is filled up with brickwork or masonry, around the sides and ends, this retaining wall being carried up to a height of five or six feet above the level of the surrounding ground. The bottom of the pit may be also finished with brickwork, or it may be well puddled with clay. If brickwork is used, the joints should be cemented with hydraulic cement, or the bricks laid on a bed of good puddle, the great object being to prevent the liquid from passing through the bottom, and from percolating into the soil. Above the brickwork of the sides, timber posts are placed, which support the sides. Between these are filled in railings, as shown. Gates are made at the sides and at each end, to facilitate the supply to and the removal from the pit of the manure. A pit 65 feet long and 26 feet broad will hold about seventy-two horse-loads of manure. Baron Peers has not hesitated to use the upper part of the frame-work as a granary, the space be-

tween the rafters being filled in with planks to form a floor for support of the grain. He has found the grain there placed kept in admirable condition; the air circulating freely all round rapidly dries it; and there is an absolute freedom from attacks of mice and rats. One would think that the emanations from the pit beneath would have a prejudicial effect upon the quality of the grain; but Baron Peers states that during an experience of many years he has not found any evil effects from this cause. In commencing to fill the pit, the manure taken from the cattle-stalls, stables, &c., &c., is spread evenly over the bottom; and thereafter the dung is put in as regularly as possible. The Baron turns in his sheep, young calves, and pigs, which help further to distribute the manure and to press it down. In taking out the manure, the carts enter at one end empty, and drive out full at the other. In filling the pit any use of the side or end gates is used, according to convenience of position. Baron Peers is a great advocate for the use of "short" or well-rotted manure in preference to "long" or "fresh," although he does not ignore, but fully admits the value of the fresh long manure, in the case of heavy soils, which require to be mechanically opened up; only that where thus used it must be ploughed into the land in autumn; for all spring cultivation he advocates the use of well-rotted manure. It will be well here to notice the method by which he obtains this condition in the manure, and which may be done in a brief sentence or two. He carts the manure from the dung-pit (covered) to a convenient corner of the field, some four or five weeks before the time at which it will be required for the land. The dung is well mixed, and if other fertilizing materials are obtainable he disposes them and the dung in alternate layers, till the mass is of the depth of two yards or thereabouts; it is allowed to lie for two or three weeks till fermentation and the consequent heat removes such of the white mould which may be present. The whole is

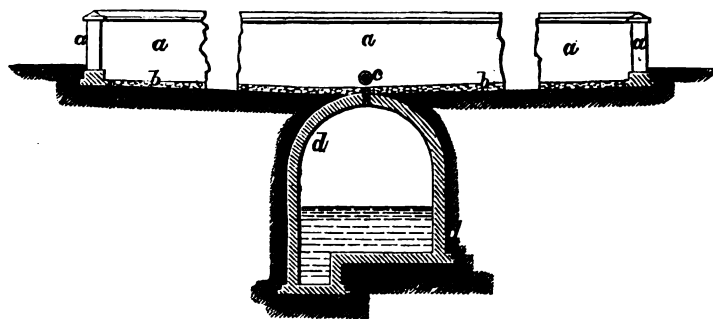


Fig. 4.

then well turned over, and then placed in heaps as before, when a new fermentation sets in, and in ten or twelve days it is reduced to a degree of decomposition which makes it at once easily mixed in the soil, and taken up by the plants. Manure in this finely decomposed or short condition, our authority admits, in common with all thinking agriculturists, is not so well adapted for heavy, close, and retentive soils, these requiring to be opened up to receive the advantages of the atmospheric influences require, on the contrary, dung which is in a fresh and undecomposed condition. In fig. 4 we give part longitudinal elevation and part section of an open manure-pit or stance, in which *a a* are the walls; the floor, *b b*, slopes towards the centre *c*, at which place there is a communication with the liquid-manure tank, *d d*—a cross section of which is given in fig. 5. The drainage of the whole dung-heap passes into this tank; and the liquid-manure from the stalls is also led into it by pipes specially laid, the end

of which opens into the dung-heap, as shown at *c*. The floor of the heap may be made of brick, or a layer of

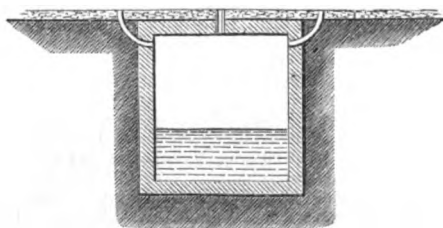


Fig. 5.

concrete may be placed there; but if the natural soil be clay, if this is well rammed-down a sufficiently impervious floor will be obtained.

## EVERGREEN HEDGES.

Mr. Hoopes, in his new work, "The book of Evergreens," which, by the way, we must take occasion to again commend to our readers, speaks very highly of evergreen hedges. He talks about varieties and treatment in the following plain and sensible manner:

"Nothing, in our opinion, is so peculiarly attractive in a well kept place as an evergreen hedge, neatly and frequently trimmed; and nothing really injures the appearance of a place more than one that is neglected and allowed to grow at will. Either as an ornamental boundary, or for a protective screen, no class of plants can equal those with persistent or evergreen leaves. Always green and cheerful throughout the whole year, an impassable barrier to winds and storms, easily clipped, and remarkably beautiful when properly cared for, of rapid and intense growth, and comparatively free from disease, they comprise indeed nearly all the requisites needed for a hedge.

"True, they cannot be formed into a defensive barrier against the incursions of unruly cattle and the depredations of the fruit stealer; but in beautifying our homes and endeavouring to create additional attractions in their surroundings, we desire something more than the merely practical; and we therefore insist that there can be no place, however small, but what may receive an added charm by the introduction of a neat evergreen hedge, such as we have described. Such improvements are invariably associated with good taste and refinement.

"Evergreen hedges may very properly be divided into two distinct classes, which, in the planting, selection of varieties, and after-management, differ very essentially from each other: first, those intended strictly for shelter or to conceal unsightly objects; and secondly, the true ornamental hedge. The former requires less care; and is intended mainly for the unfrequented portion of the grounds, and very frequently needs no attention, excepting an occasional clipping of the stronger branches, and a heading-in of the taller plants.

"What is needed more particularly in a screen or barrier to break the force of storms is a strong-growing hardy species that is not easily affected by the wind, and such we find in the hardier class of pines and spruces, as the white, Scotch, and Austrian pines, and Norway spruce.

"Although we find the common red cedar (*J. Virginiana*), Chinese arbor vitae (*Biota orientalis*), and common juniper (*Juniperus communis*), occasionally recommended for this purpose, we are compelled to discourage their use owing to their unfortunate habit of dying out near the base, and thus disfiguring the symmetry of the screen, as well as opening a passage for the cold winds. This may not be the case throughout the West; and, indeed, Dr. Warder, in his work on 'Hedges and Evergreens,' maintains the contrary opinion; but in the Eastern States we have frequently noticed this drawback to their culture. The late William Reed, of Elizabeth, New Jersey, than whom no more skilful hedge-grower could be found, stated to the writer that these plants would never answer the purpose, and that after several years of patient trial he had entirely given them up. The American arbor vitae (*Thuja occidentalis*) affords an excellent protective screen in a small place; but on an extensive scale we prefer the pines and spruces.

"The true ornamental hedge, to please the eye by its symmetrical proportions and richness of colour, should receive a full amount of care and attention, for the neglect of one season will very frequently cause it to become disfigured to such a degree as to require several years to rectify the damage caused by the remissness.

"After determining the location for the hedge, the ground should be ploughed or dug deeply, about four feet (or even more) in width, and the plants set along the centre of the pulverized strip. The proper distance apart for the plants will be determined in a great measure by their size and the species used. We prefer the height from twelve to fifteen inches for arbor vitae, hemlock, and other plants of medium and slender growth. In large screens this distance must be modified, and the plants set three, four, and even a greater number of feet apart, according to the required density of the screen.

"Nothing further is needed during the first season than to trim off the tops of the larger plants, or an occasional side-shoot that projects further out than the main portion of the

hedge. Always bear in mind that the ground must be kept scrupulously clear of weeds, and be frequently stirred. Nice very often attack a neglected hedge, but very seldom a clean, well-cultivated one. In stirring the soil, the hoe or cultivator should not run so deeply as to destroy the numerous small rootlets with which the conifers are so abundantly furnished. We usually scatter a slight dressing of well-rotted manure over the surface of the soil during the winter, and thus at the same time protect the roots and furnish nutriment for the coming season's growth.

"The second year the plants ought to make a reasonable growth, and a clipping during the summer will be required in addition to the regular autumnal shearing. If inclined to grow strongly, a frequent trimming will be beneficial, as it should always be the aim of the cultivator to produce an impenetrable mass of foliage, especially at the base of the hedge. The requisite shape should also be given as soon as circumstances will permit.

"We prefer the curvilinear form for many reasons, the most practical of which is its ability to shed a heavy weight of snow that would otherwise adhere, and, by pressing out the side branches, mar the beauty of the hedge. Novices must always bear in mind that it is very easy to produce a tall hedge, but to form one with a close broad bottom requires frequent trimming, and a proper amount of attention; for after the hedge is grown this cannot be accomplished. In after years, when the hedge arrives at its required height, all that will be necessary is the frequent use of shears and due attention to keep the weeds and other strong growing plants clear from the root.

## THE ADULTERATION OF SEEDS.

The results of sowing, as shown by the average of two trials (which, it is right to say, in general corresponded very closely), were as follows:

Out of the eighteen packages of 100 cauliflower-seeds the following numbers respectively came up, viz., 86, 70, 66, 66, 56, 54, 54, 52, 51, 51, 50, 44, 44, 44, 43, 39, 36, 24.

Out of the eighteen packages of 100 broccoli-seeds the following numbers respectively came up, viz., 86, 83, 70, 68, 65, 62, 60, 59, 56, 55, 50, 46, 42, 43, 39, 35.

Out of the eighteen packages of 100 carrot-seeds the following were the numbers which came up, viz., 61, 56, 54, 44, 47, 45, 44, 43, 41, 38, 38, 37, 37, 35, 33, 30, 19, 14.

Out of the eighteen packages of 100 white-turnip-seeds the following numbers respectively came up, viz., 98, 95, 93, 87, 83, 82, 71, 70, 68, 68, 66, 64, 62, 60, 58, 57.

Out of the eighteen packages of 100 yellow-turnip-seeds the following numbers respectively came up, viz., 95, 84, 79, 78, 78, 77, 72, 72, 67, 66, 65, 64, 62, 58, 55, 54, 48.

It should be added that the quality of different kinds of seeds obtained from the same tradesman was not always uniform, all good or all bad; the cauliflower would sometimes be inferior and the turnip superior, and so on; but, on the whole, a good position in one kind was generally accompanied by a good position in all. It is also to be observed that the general per-centage is less on some seeds than others—a difference probably due to the greater care required in harvesting them, and, in the case of carrots, to the difficulty in separating the good seed from the bad.

In seeking a remedy for the evil, your committee recognized the existence of two distinct elements in it, each requiring different treatment: 1, the actual adulteration of seeds; and 2, the mere keeping them too long and selling them when too old.

Actual adulteration is entitled to no mercy. It is a deliberate and intentional fraud, in the suppression of which the trade is as much interested as the general public, and ought to be suppressed by the strong hand of the law in the same way as any other fraud.

It is different with the selling of old seed. The seeds produced in different years, like different vintages, vary in their quality and in their power of retaining vitality. It thus sometimes happens that two-years' old seed is better than one-year's old. There is thus a special difficulty in dealing with it; but it is clear that the public are entitled



to get what they pay for; and if it is necessary, to secure this, that the dealer should test the quality of his seeds each year, it is his duty to do so.

It seems a right and proper thing that Government should bestow some pains in protecting the very large numbers of ignorant and uneducated people who have to purchase seeds. In Prussia, sachverständigen, or, as we should call them, experts, are appointed by Government, whose duty it is, for a certain fee, to test the quality of the seeds of such merchants as apply to them, and to publish the results; and in some districts (Saxony and Wurtemberg, for example) there are officials, paid by the Government or district, whose business it is to look after the culture of fruit-trees and to give gratuitous advice to all who apply to them for it.

But, independently of the action of Government, your committee are disposed to think that the Council of the Royal Horticultural Society might itself do much to encourage the sale of good seeds, if not to prevent the sale of bad. How it can most effectually exert its influence for this purpose, is a question on which the Council might probably obtain useful suggestions from the respectable members of the seed trade; and your committee recommend that a number of them be invited to meet the Council and give their views as to the best steps to be taken to remedy the evil.—*From the Report of the Council of the Royal Horticultural Society.*

### THE OLD RUSTIC APHORISMS.

At the American Farmers' Club held in New York, Dr. J. V. C. Smith of Boston, read this short but entertaining paper. He said that for 300 years in England, and 100 years in America, the most valuable literature of agriculture consisted of old saws or maxims, generally thrown into rhyme, some of them quaint and homely, but often spicy and valuable. He had been at some pains in gleaning in old books and papers, and would read a few of the most pertinent.

If butter churned in morning air  
Is kept in a cool place with care,  
The taste is nice;  
But that which shows the butter-milk  
Don't sell to those who dress in silk—  
For any price.

To be in debt  
Brings out the sweat.  
No half-cooked meat  
Is fit to eat.

A woman who sneezes  
Ought not to make cheeses,  
Put her hands in a muff,  
Or ever take snuff.

When the wind is east, and turkeys gobble,  
It is no time a horse to hobble;  
But let him range to catch the breeze—  
Should he be troubled with the heaves.

An ox with broad horns and short glossy hair,  
Is good for a team, the market, or fair.

One white foot is bad, and two are too many,  
That horse is best that does not have any.

Safe bind,  
Sure find.

A farm without hogs,  
But an army of dogs,  
Will have more puppies than pork;  
For the swill will be lost,  
To the husbandman's cost—  
Dogs are good for nothing to work.

The slackest farmer, strange to say,  
Is known for being out of hay.

It does not pay in any way,  
To milk a cow three times a day.

When chickens roost above the mowe,  
It spoils the hay for horse or cow.

The well-bred daughter of a farmer,  
A prudent helpmeet and a charmer.

Geese in a pasture spoil the grass,  
For horses, donkeys, and the ass.

It is no place to set poles  
Where moles or mice have dug their holes.

Cobs make no food for kine to eat,  
But they are good for smoking meat.

Pork and beans make muscles strong—  
Something farmers seek;  
It is a dish to make life long,  
When cooked but once a week.

A slovenly dress, a shaggy pate,  
The fences down, a broken gate,  
Pigs in the garden, weeds very high,  
Children unwashed, no bacon to fry,  
Lots of great dogs and yawling tom cats,  
Windows repaired with a dozen old hats,  
An empty barn—not a spear of hay,  
Cows in the clover, horse run away,  
Things sold by guess without being weighed,  
Bills coming in, and taxes unpaid,  
Pipes and tobacco, whiskey, neglect,  
Drag in their train, as all might expect,  
All sorts of troubles to fret away life—  
But worst of the whole, an unhappy wife.

Little boats should keep near shore,  
But larger ships may venture more.

Many estates are lost in the getting,  
Since men have forsaken hewing and splitting,  
And women their sewing and knitting.

A mackerel sky—  
The wind will be high,  
Then bring in the grain,  
Close by there is rain.

A smoky chimney may be cured,  
A scolding woman not endured,  
A farmer's wife, like cream or curd,  
Is to be seen but seldom heard.

Bare-footed girls,  
With floating curls  
About the gate—  
Though quite content,  
Are no ornament  
To the estate.

If you would thrive,  
Be up by five;  
For there is health  
And certain wealth,  
When at the plough,  
Or milking cow.

A farmer should at home be found,  
And often looking at his ground—  
Inspecting fields, repairing fence—  
For dollars come by saving pence.

Clear the soil from moles and slugs,  
Prune the trees—keep off the bugs,  
Then fruits and melons, rich and fair,  
Will recompense for all your care.

Rutabaga, carrots, and beets,  
Improve the character of meats;  
They make good beef, and quicker, too,  
Than any other feed will do.

At the farmer's cost  
Is an early frost.  
Exercise reason—  
Harvest in season.

Of all the crops a farmer raises,  
Or capital employs,  
Brings back such comfort and such praises,  
As a crop of girls and boys,

## THE QUALITY OF WHEAT.

The conditions which influence the quality of wheat may at the present time fairly claim attention, more especially such as are readily under our control. It is a well recognized fact that the quality of corn is very materially influenced by the time at which it is cut. We propose briefly to notice some of the circumstances which co-operate in bringing about so important a result.

The production of a perfect seed is the ultimate result naturally arising from the growth of the wheat plant; and its habit of growth is eminently adapted for its attainment. In its uncultivated state the perfection of such seed is secured by the natural habit of the plant, and without the care of the husbandman it will produce seed of that character which is best adapted for securing its reproduction in all its natural hardihood of growth. Under such circumstances it is produced in such a state that it can best withstand decay until the natural season for its growth returns. Such specimens of corn are usually exceedingly tough, and well coated with a covering almost flinty in character. This results from the growth being continued until the seed is fully matured, and its outer coating being fully charged with siliceous matter. This is a condition eminently desirable for the protection of the seed, but it is a very great drawback to its value for the purpose for which we require it, viz., the production of flour. Corn of this description would yield very little flour, but a large proportion of hard and valueless bran.

The object of the cultivator is manifestly opposed to such a result. We require corn which shall yield a large proportion of the best quality flour and the smallest proportion of bran. We also desire that the bran which is produced should be of a nutritious character, and not merely a siliceous coating, valueless as food. The quality of the seed has an important influence upon the quality of the crop, and so also has the general system of cultivation which may be adopted; but both of these influences are beyond the subject we now wish to notice. We rather purpose noticing the influence which is exerted upon the quality of the wheat by the condition of the plant at the time of cutting.

The undesirable results we have mentioned may be, to a great extent, produced even when seed of good quality has been used, by allowing the corn to become very ripe before it is cut. It will be readily admitted that much injury does arise from this cause, when a quick season carries on the ripening more rapidly than the labour of cutting can be accomplished. The miller soon detects the injury which has been produced, and the increase of the less valuable portions necessarily decreases the value of the sample. Numerous carefully conducted experiments upon the products derived from corn, cut in different stages of ripeness, clearly prove that corn cut whilst the straw is greenish not only produces most flour and least sharps and bran, but produces all of them of higher nutritious value than at any more advanced period of ripeness. The relative proportions steadily decrease in value through the several stages of the advance towards extreme ripeness.

This result readily admits of an explanation from the fact that the grains in an ear of wheat become charged with rich nutritious matter before the coarser supplies of siliceous matter are deposited around them. The internal structure of the grain is first of all charged with the albu-

minous matter of the juices of the plant, from which the gluten of wheat is produced, whilst at the same time the saccharine products thus carried into the grain become charged with starchy matter. The production of the husky envelope is, comparatively speaking, a later stage of development, too often carried on at the cost of the partially matured gluten and starch supplied to the grain.

One of the great advantages of the early cutting of corn appears to be the interruption thus occasioned in the development of the grain. It appears to check the transfer of the material passing through its stages of chemical change within the grain, and prevents its appropriation for the formation of the envelope. The result is that we secure a thinner skin and the grain preserves its supplies, and retains a fullness and plumpness which is not usual in wheat which is allowed to become fully ripe before it is cut. The same remark holds good as to the mineral matter, which is diverted in a similar manner from the interior of the grain to its surface. It is a singular fact that the chemical constituents, which in the interior of the grain become formed into gluten, starch, and the mineral matter of flour, each and all of which are exceedingly valuable in rendering the flour of wheat a perfect food for man, when these ingredients are diverted therefrom and converted into a husky envelope they lose very much of their nutritious value, and frequently become quite valueless as food. We have a familiar example of a somewhat similar character in the over-ripening of the stems of grass and clover. Here we observe soft and nutritious vegetable matter assuming a hard and tough condition, containing very similar chemical constituents, but in a state most difficult of digestion and assimilation when used as food.

The prejudicial influence does not limit itself to the relative condition of the internal and external portions of the grain. It is observable in the condition of the husky envelope itself. There is a very great difference in the nutritious value of bran: some samples rank high as feeding material, whilst others are comparatively valueless. To this fact alone can we satisfactorily trace the difference of opinion entertained respecting the value of bran as a food. Tried under exactly similar circumstances, the results have been most conflicting; but the discrepancy is fully explained when we find that the nutritious character of bran is not in any way definite, being entirely dependent upon the state of ripeness at the time of cutting the corn.

There are, therefore, very clear and powerful inducements for the early cutting of corn, but at the same time it must be carried out with discretion. A reckless adoption of the practice would have a tendency to decrease the crop, because of the grains of wheat not being sufficiently developed, and therefore smaller in size than they should be. Under ordinary circumstances the grain in the ear gains considerably after the cutting has been carried out, from the fact that whilst the straw hardens much of the sap contained in the stem is drawn up into the ear, and its valuable ingredients are taken up by the grain. At the energy of the plant is at this stage of growth directed to the development of the seed, and hence there is a powerful tendency in the plant to make use of any valuable matter remaining in the stem. Much of the success attendant upon the early cutting of wheat may be traced to these conditions of growth, and in many respects they are worthy of careful consideration.

## AUTUMN CULTIVATION.

Such a lengthened period having elapsed since the wind-up of the harvest, the agricultural mind finds it difficult to realise that the season is still so early—that in fact there is nearly a whole month of autumn yet to elapse before winter is reached even by name. It is a most unusual thing to find September almost or, as has been the case in many of the earlier districts, altogether clear of harvest operations; and, with the most of October still to run, a boon of inestimable value has thus been presented to the agriculturists, the most valuable period of the entire year for pushing on field-work being left free to him, untrammelled by the usual important considerations which occupy his attention during the greater portion of these months. Much can be done in the way of clearing, cultivating, and generally preparing the land for the reception of the future crops; and what adds greatly-increased value to the mere performance of these operations is the thoroughly efficient manner in which they can be put out of hands. The soil is now in the best possible condition for working, being firm and dry; and (unless on the heavier clays) work can be proceeded with immediately after moderate rain with perfect propriety, the moisture which it has already received having done no more than bring the land into good working condition. What a different position a man who has got through the preparatory cultural operations during the autumnal months finds himself from him who has allowed them to lie over till winter and spring, after having become sodden and saturated by heavy rains. The one is all that could possibly be desired for economical and profitable cultivation, combining that friability and mellowness of surface and fineness of tilth which is so eminently a requisite of successful production. Other things being equal, the crops, whatever their nature or character, get away without the slightest check, and, being vigorous from the very starting-point of their growth, have a much better prospect of reaching successful maturity. On the other hand, land that has been ploughed late in the season, and lain in an unbroken mass, becomes hard and obdurate under the drying influence of the March winds, and requires the exercise of immense power and the aid of powerful and heavy implements to reduce it to the mellowness of condition so highly essential for the healthful germination of the seed, and the consequent future well-doing of the crop. At no time can the cleaning be so well done as now, or with so little expense; the thorough eradication of weeds ought therefore to be as much the object of the farmer as the stirring of the soil. In such a season as the present, when keep is scarce, there is great inducement to throw a little grass seed on the stubbles to help the sheep in early spring, some men doing it nearly every year. The object certainly is a good one; but an addition to the available stock of food in this way is dearly bought at the expense of having all the cleaning and cultivation of the green-crop land thrown over upon the spring. The trampling of the animals too acts injuriously on the land, rendering it difficult to work; and, moreover, by having the soil thus occupied during the winter months, it is deprived of all the ameliorating influence of frost and other valuable atmospheric influences. We therefore think, with all due deference, however, to the opinions of those who follow the system, that it is only admissible under peculiarly exceptional circumstances. On the score of economy autumn-working of the fields intended for green crop has much to recommend

it, and on that account alone deserves the careful consideration of every farmer. When the teams are set to work immediately after the fields are cleared of the corn, there is still a long day available, and the interruptions from broken weather being neither so frequent nor so lengthened as at a later period of the year, the business is got through with great rapidity. A great saving is effected in horse keep by this mode of management; the work being more evenly distributed over the year, fewer horses can overtake it than could possibly be the case when the greater portion of the cultivation has been left over until spring. Neither is there so much work to be done, as when the soil is worked in autumn it is in most cases so dry and friable that half the ordinary labour will suffice to bring it to the required fineness of tilth. With horse provender so high as it is at present, and every prospect of its being much higher as spring comes on, the saving of the keep of even one horse is a consideration. But where the occupation is large, and the saving amounts to the keep of several, whose services have been dispensed with on account of the cultivation of the land being got through in autumn, the saving becomes so important as not to be beneath the notice of even the most wealthy. The earlier the scari-fying process can be got through the better for its efficiency, the sun being still powerful, assisting most materially in destroying the weeds, both annual and perennial. Yet, as it is not always this particular department can be attended to all at once, it does not by any means follow that because it is not done early it should not be done at all; on the contrary, there is all the more reason to attend to the destruction of weeds, as from the time they were relieved by the presence of the corn they have been growing vigorously, extending their roots in every direction, and rapidly preparing to take complete possession of the soil. All that is required for the complete eradication of weeds is to take care that they are completely loosened by the grubber or cultivator; thoroughly disintegrated and cleared from the adhering particles of earth by the action of the harrow, then ploughed down at once, with a furrow as deep as the horses can draw, or the nature of the subsoil permit. When properly shaken out, even those weeds which are most tenacious of life can never again catch hold of the soil, but quickly decompose and die completely out. The plough alone cannot possibly eradicate weeds, but acts more as a propagator, dividing the roots by its action into numberless cuttings or off-sets, and thus speedily filling the soil and covering the surface with an unbroken mass of the very vilest weeds known to agriculture. To pick off the weeds which have been up-rooted by the grubbers is mere labour lost, and if present in any appreciable quantity to some extent an injury, robbing the soil of a portion of its nourishment. It is wholly unnecessary to take any such trouble, the ploughing-down being quite effectual, and the rotting of the weeds forming a great addition to the resources of the soil, in the shape of rich vegetable mould. There is an exception to this of course in the case of those who do not use the plough at all in autumn cultivation, but let the land lie during the winter in the state it has been left by the cultivator. When this mode is followed, and it happens that root weeds are present to such extent as to be an eye-sore, they can be collected, and either burned or carted away to a compost heap, as when rotted they make excellent material

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for mixing with lime, the mixture making an admirably suitable top-dressing for grass. We cannot help thinking, however, that the cultivator and plough combined make far the best work, and form the best preparation for the future crops. The deep furrow, which is so eminently suitable, and, in fact, so highly necessary for keeping up a high state of fertility, can only be given with any degree of safety in autumn. By it a portion of the virgin soil is brought to the surface, and there submitted to the influence of the weather and action of the air, thus neutralizing the injurious effects which are sure to arise to any tender rootlet by coming into contact with any portion of the subsoil. When the operation of broad-sharing has been properly performed, that is, when no portion of the surface has been passed over without being stirred, and the depth sufficient to get under the roots of the weeds, there is real pleasure and an immense amount of satisfaction to be derived on examination of the furrow when turned over by the plough. Not the slightest trace of a weed is to be seen, however foul the field may have been previously; and the dryness and friability of the soil itself, the result of being worked early, augurs well for its working kindly in spring, and for its being prepared for the reception of the crops at a very slight expenditure of labour.

For occupations of small size there is not the slightest occasion for going to the expense of getting an expensive implement, as there are many modes of performing the work of paring the surface inexpensively and yet efficiently when the extent to be gone over is not great. We have seen a breadth of nearly twenty acres gone over by one plough to which a paring-sock had been attached, and done in a style too which left nothing to be desired in the way of economy or thorough performance of the work. In the broad-share and cultivator we have exemplified the best class of implements suited for autumn cultivation, as they not only clean the land of all root-weeds but stir it at the same time. Although not, in our opinion, doing away with all necessity for the plough, they yet assist its action most materially; and from fewer ploughings being required to bring the soil to the necessary degree of fineness, the expenses of preparing for the green crops are very considerably lessened.

We use the cultivator ourselves, and although the implement has been in use for eight seasons it looks as if it would last for a generation without injury. If the surface is hard from long drought, it may not be quite so steady in the ground as the others named, but when ordinarily free the quality of work done cannot easily be surpassed. The narrow grubbing-shares are most suitable for the first stroke, relieving the horses, and enabling them to go over a much greater extent. When crossing, the duck-footed shares can be substituted for the narrow ones, and not an inch of the surface will escape being stirred, or a weed left growing, unless through the negligence of the driver.

From French experiments, recently published, we are constrained to believe that the English farmers' theory with regard to the cutting of corn rather early or while the grain is still capable of being squeezed between the finger and thumb, is entirely wrong in principle. It is quite possible that the French theory is right, and the English wrong; yet, instead of the grain crops being allowed to stand longer before being cut than is at present the practice, they could be cut even earlier, and that with great propriety, and save much more money per acre than the amount indicated by these experiments. The loss from shedding is a very serious one, much more so than is generally imagined; often amounting, in the case of black oats and some varieties of wheat, to several bushels per acre. In no way is this so clearly ascertained as when the stubbles have been gone over by the cultivator

and allowed to rest for a couple of weeks before being turned down by the plough. The soil being made so fine by the action of this implement, and in every way rendered so favourable for vegetation, there is not a seed left but germinates; and unless much care has been taken in the handling of the corn, or the precaution taken of cutting while there is a green tinge on the straw and the grain somewhat soft, the surface of the field will present all the appearance of having been seeded liberally for a fresh crop of corn.

There is thus a valuable lesson to be learned by stirring the soil in this way during the autumn months, which well repays any farmer who acts upon it; a very trifling sum saved per acre, amounting to a respectable thing when multiplied by eighty or a hundred; or, in the case of large farmers, even a great deal more.

In preparation for sowing winter vetches there can be no more useful implement than the grubber, the weeds being first of all torn out and left on the surface, and the soil moved to a considerable depth, and rendered so mellow that fertility is actually imparted to it by the very process of working. This occurs from the thorough smashing up of the soil enabling the roots of the plants to penetrate in all directions in search of food; the whole of the soil within their reach becoming filled with fibres. When, however, a light dressing of dung is laid over the grubbed land, and ploughed-in with a light furrow, then the seed has an excellent bed; is sown under the very best possible conditions; and its future well provided for. Land prepared in this way may be seeded much less liberally than is safe to attempt when but little trouble has been taken with its preparation. There is, first of all, no waste of seed from its getting down under the furrow-slice, the fine earth created by the action of the cultivator running into all interstices and completely preventing any loss of seed. Again: When the growing season comes round the plants are so vigorous that they branch out abundantly into strong succulent stems, covering the surface with a perfect mass of verdure; and more cutting is got from two bushels under such favourable conditions than could be got from three-and-a-half when the cultivation has been slovenly performed. The saving of one bushel of seed on an acre of vetches would this year be equivalent to the entire working expenses in preparing the land for the reception of the crop, and is well worth a trial. Autumn presents an excellent opportunity for the carriage of lime to a farm and its application to the stubbles. During the winter the soil has all the benefit of its warming and sweetening properties, and when applied now to the more adhesive soils an amount of friability is imparted which renders them comparatively easy to work in spring. Lying-over the winter gives ample time for lime which has been put on fresh from the kiln to lose its causticity; and on the land to which it has been applied now fresh manure, guano, or other dressings, evanescent in their nature, may be applied with perfect safety, there being by that time no danger whatever of their active properties being neutralized by the action of the lime. For mixing the lime intimately with the surface and preventing its being turned over underneath the furrow, there is no better plan than lying it on previous to the grubbing. The subsequent stirring it receives blends it so completely with the soil as to check in a great measure the tendency to sink down through the soil, which is such a peculiar feature of this mineral substance. While the weather continues suitable it is excellent policy to push on the work of autumn cultivation with all the strength of the farm that can be spared from other pressing operations. In particular the cultivator should not be stopped if at all possible, unless by bad weather, until the entire breadth intended for green crop is gone over. The preparation

of the soil now enables the farmer to get quickly on in spring, and thus obtain an earlier seed-time than he could otherwise do had the entire working been postponed until that time. The early-sown mangolds, carrots, and swedes get all the advantage of the winter sap not yet

exhausted by a powerful sun, and, having the advantage of a good start, and covering the ground early, have a better chance of resisting the injurious effects of a dry summer,  
J. S.

## LIME AS A MANURE.

The employment of lime as a manure is a practice which boasts of as early an origin as any now adopted for adding to the land any of the materials removed by heavy cropping. In some districts the use of lime is even already placed in the category of antiquated practices, having yielded to the competing rivalry of more concentrated manures; but from these same districts we hear of occasional difficulties in the cultivation of certain crops—difficulties which are undeniably on the increase, and which some few years since were far less frequent in their occurrence. Can there be any connection between the two facts? It is, we think, worthy of inquiry whether or not such be the case, arising as they do in the same districts.

The value of lime as a manure is and has been well recognised; its action has been perhaps more fully and deeply studied than any similar material; and the sphere of its influence is unquestionably greater than any other manurial agent. The use of phosphate of lime in its various forms we would not for a moment undervalue; but it has not that varied action which results from the employment of lime. It is truly expressed in homely phrase that the use of lime "sweetens" the land, and we shall some day more fully appreciate its value in this respect than is generally acknowledged at the present time. Without adopting the views which were at one time commonly entertained by scientific men—that, after the growth of a crop upon the land, it became year by year less capable of producing a succession of such crops, because certain excrementitious matter was thrown off by the plant, which, however valuable it might be for other classes of plants, was objectionable for the crop by which it had been produced—we may with perfect safety state that these principles which have been so discarded have some truth intermixed with them which our daily practice gives no indication of. If we attempt to account for such a result by saying that it arises from the soil being exhausted of certain materials required for that particular crop, and that a luxuriant crop of another class may be grown, provided it requires only the materials that remain in the land, and does not require those materials which have been removed by the preceding crop, we fail to give a full explanation of the difficulty. Take, for example, the substitution of turnips instead of swedes or of the cow-grass or white clover for red clover in the following rotation; and such cases are becoming more and more frequent every year, where changes have to be made in the variety of root-crop or the seeds selected. If we attempt to explain away the fact on the ground of the exhaustion of the soil, we signally fail, and for this simple reason, if for no other—that chemical science fails to show that the difference in the materials drawn from the land by a crop of clover or cow-grass as contrasted with the materials removed by a crop of red clover, or by a crop of turnips as contrasted with a crop of swedes, is equal to the difference observable in the requirements of these respective crops, even upon adjoining fields. We are, therefore, disposed to believe that the complaint now so frequently heard that fields are tired of certain crops, and the confidence with which many farmers express

their conviction that the sowing of a particular crop must result in a failure, can only have a satisfactory explanation given by something more than the mere proposal of exhaustion. The observant eye of the practical man has linked together these facts; and although we cannot as yet fully explain why the land becomes tired of a certain crop, yet we do see reason for connecting this fact with the popular impression as to the sweetening of the land.

This is rendered the more curious and interesting by this additional fact—that, where the use of lime has been persevered in, there we do not observe the difficulty complained of elsewhere. It is perfectly clear that the action of lime upon a soil admits of a more frequent and healthy growth of the same crop, and that, whatever may be the manner of its action, the power of lime to "sweeten" the soil admits of no doubt. If we look upon the action of lime on the organic matter of the soil we see in this alone sufficient to explain much that arises there. It is well known that acid vegetable matter, which is exceedingly injurious to vegetation, is, under the influence of lime, rendered not only harmless, but really nutritious. We feel the necessity of drawing attention to this agricultural difficulty; for, whilst we do not pretend to explain it with any degree of completeness, we recognize it as an important point, and hope that it may receive that consideration of which it is worthy from those competent to carry out the necessary research.

The employment of lime as a manure had another advantage than that already named. Its action was not limited to the organic matter of the soil, but it had a powerful influence upon the mineral matter with which it came in contact. It is generally known that the soil contains vast stores of fertilizing matter which are locked up, as it were, from use: there they are, but only a small proportion are available for use. Indeed, even the poor soils, which are regarded as almost valueless for cultivation, contain supplies of fertilizing matter vastly in excess of what is available on our best soils; but the difference lies in the fact that in the one case the store is locked up, and a very limited supply only within reach; but, in the other, there is a liberal supply ready for use, as well as a considerable quantity locked away. Now, the action of lime may be compared to the blacksmith opening some of these stores, and rendering useful that which was previously in such a condition as to be practically valueless to the growing crop. Lime, therefore, becomes a most important agent in promoting the fertility of the land, even when regarded in its influence upon other bodies which may be present in the land, in addition to any value which may be attached to it as a food for plants. In its direct action as a manure, considered simply as food necessary for promoting vegetable growth, its value is great. All our cultivated crops require it, and some require it in large quantities; and although it exists abundantly in many soils, and in almost all soils to a greater or less extent, it does not always exist in such a condition as to be available for vegetation, and hence we see one reason why the use of lime is not unfrequent, even upon limestone

soils. There is no doubt that what has, in a great measure, tended to diminish the use of lime upon the land is the cost attendant upon its application, and this has, in some degree, encouraged the substitution of cheaper competitors. It is, however, well worthy of careful consideration and trial how far the large applications of lime which were so usual, and which still continue to be made in some districts, are essentially necessary. It is by no means unlikely that we may find that frequent applications, and in much smaller quantities than are

usual, may prove to be valuable stimulants, and purify the ground. If we notice the small dusting which an ordinary application of artificial appears to give, and the marked results which arise from the admixture of such small quantities, it should not at any rate discourage the use of small quantities, and more especially when the use of a manure of undoubted value has been disregarded in consequence of its bulky character and cost rather than from any doubt as to its value.

## THICK VERSUS THIN SOWING.

The question of thick *versus* thin-sowing still remains a debatable one. As the season, however, for wheat-sowing is now coming in, it may be useful to call the attention of our readers to an experiment made in France, where, as in England, the custom of thick-sowing has been the rule time out of mind. M. Vilmorin gives the usual amount of seed-wheat in France at three hectolitres (or 8½ bushels) per hectare, or rather more than three bushels per acre, which is about the average sown in this country; and he estimates the number of grains per square metre, or yard, in that quantity at 450. "It is evident," he says, "that no one, in sowing so thickly, thinks or expects that this number of seeds on the square yard should germinate, grow up, produce grain, and ripen so many plants of wheat; for experience proves that the richest and best-manured soil would be insufficient to carry out such a production, which, reckoning only one ear to the stem, and forty grains to the ear, would represent a return of no less than 120 hectolitres per hectare (or about 133 bushels per acre); but we know that many grains buried too deep do not vegetate, and that others near the surface are the prey of birds, field-mice, and other causes of destruction: in fact, we sow too thick to have the plants thick enough." This supposes broad-cast sowing; but even with the drill-machine the same practice of thick-sowing, though to a less extent, is carried on, and few farmers will allow the cups to be set at a less rate than from 2 to 2½ bushels per acre. We have before shown the estimate made by Stephens, in his "Book of the Farm," of the number of plants there *ought* to be when three bushels per acre are sown. "Wheat," he says, "of 63lbs. per bushel, gives 87 seeds to the drachm, or 865,770 to the bushel avoirdupoise. Three bushels, therefore—the common seeding per acre—contain 2,595,510 grains. Suppose each grain produces one stem, and each stem one ear, it will produce the same number of ears of 32 grains each. Multiply, therefore, 2,595,510 by 32, it gives 85,056,820 grains. Divide this by 87, and we have 954,670 drachms. Divide again by 256, the number of drachms to the pound, and the product is 3,729 pounds, which, at 63 pounds per bushel, gives 59 1-5th bushels." This produce has sometimes been exceeded by sowing half a bushel, and even one peck per acre.

But we set out with the intention of giving the results of the experiment of M. Vilmorin, and must now hasten to do so. The extent of land on which it was made consisted of five *ares*, of about 120 square yards each. This was divided into five equal parts, numbered 1 to 5. In No. 1, the rows were about 7 inches apart, and the seed in the rows at the same distance, there being therefore

25 to the square yard. In No. 2, the rows were the same distance from each other, but the seeds at about 6½ inches, or say 33 to the square yard. In No. 3, the rows preserved the same distance, but the seeds were planted at 3½ inches, or 50 to the square yard. In No. 4, the rows were only 3½ inches from each other, and the seeds the same distance, giving 100 to the square yard. In No. 5, the rows were at 3½ inches apart, but the seeds only 1½ inches, giving 200 to the square yard. We should state that the soil was of a sandy character, and of an average degree of fertility, and having received a light manuring with horse-dung. The following were the results:

	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
No. of grains per square yard .....	25	33	50	100	200
Weight of seed in grammes .....	125	165	250	500	1000
Gross produce in kilos. ....	119	117	98	107	99
Weight of grain in ditto .....	18.100	17.700	16.700	13.800	12.300
Weight of grain per litre in grammes ...	760	748	742	716	702

These figures, the author says, speak for themselves for a glance at them shows that in proportion as the quantity of seed increases, we find not only the quantity of grain produced but also its specific weight decreases in a regular proportion, or, in other words, its quality. The quantity of straw in each does not much differ except in No. 3, which was lodged more than the others. The seed was the red Scotch. The little difference in the straw, as the experimenter observes, shows that a plant of wheat requires more from the land in forming and ripening the grain than it does to develop itself from its germination to the period of flowering; and that where we plant ten seeds we must not look for more than two or three to arrive at perfection. The writer adds that the ears were finer, longer, and contained more grains in the thin-sown parcels, and that the straw, while stronger, was neither too harsh nor bent, nor were there amongst them a greater number of backward ears than amongst the close-planted.

In Italy they grow wheat expressly for plaiting, the straw being the first and the grain only the secondary consideration. They there sow very thick to get the straw as fine and white as possible. As to the ears, the finest are not more than an inch and a-half (5 centimetres) long, and most of them not more than half that length; but they use the grain for seed, if harvested well, and obtain good average crops from it.

## AERATION OF LAND.

Although modern systems of cultivating land are greatly more in favour of its aëration than the old plans, the differences in favour of the former are often not perhaps so great and numerous as they might be, and the current season is one which illustrates very forcibly the soundness of the conclusion. The discussion on the subject involves the peculiarities of modern agriculture in favour of aëration, and their contraries as compared with the old practice.

The more thorough drainage of the land; the use of improved implements of husbandry, with the deeper and more effective tillage produced by them; and more scientific systems of manuring and cropping; may be instanced as the leading characteristics in favour of improved aëration. The *per contra* view of the subject is not so easily placed in readable form before the reader, as it includes neglected duties, and mismanagement in so many ways as to render it all but impossible to give an intelligent account of them. In other words, they belong to that category of facts in farm practice which are said to be more easily understood than expressed. For this reason it will be more convenient to discuss the above favourable characteristics and their contraries together than separately.

Too much cannot be said in favour of the thorough drainage of land, either naturally or artificially, in order to effect its proper aëration; but in nine cases out of ten porosity of subsoil and the mere putting in of an artificial drain are not all that require to be done, much of the success of both kinds of drainage, more especially of the successful working of the drains in the latter examples, depending upon the mode of cultivation and cropping pursued by the farmer afterwards, while much of the efficiency of the latter again depends upon the nature of the seasons, some seasons being more in favour of aëration than others. In short, the aëration of the land may not inaptly be termed a *work per se*, every example being exclusively subject to its own peculiar rule, less or more modified by season, soil, and climate, too much air in the soil being just as bad as too little.

The proper aëration of the land involves both a chemical and a mechanical process, the former having reference chiefly to its fertilization, and the latter to its disintegration, or mechanical subdivision; and most farmers know when their land is in a healthy state of aëration rather from experience than from scientific data, always assuming the season to be propitious; and those who farm thoroughly-drained land, whether by natural or artificial drainage, are familiar with the advantages of the same, let the season be either ordinary or in the extreme of wet or dry. But wet seasons demand a different practice from dry seasons, and neither rule is in harmony with that of the ordinary weather of the district; and then how different is the ordinary weather in one district from that of another. Such being the facts of the case, it is easy to understand how farmers are guided more by their own experience than by any scientific rule which can be laid down in books.

It would, however, be very wrong to conclude from this that the experience of the farmer is not guided by science—the very reverse of this erroneous conclusion being true. This will appear manifest when it is considered that the most successful practice is but another way of expressing the most successful example of applied science. The successful farmer may not be able to express himself in the language of scientific works; but in the field he knows the application of science, and this in the majority of instances is more than scientific authors do. At the same time, it must be borne in mind that an elementary knowledge of science, or a thorough acquaintance with the elements of science, is of paramount importance to the practical farmer in the putting of his land into a proper state of aëration. In this respect the modern farmer, who has received a scientific education, and who has made himself master of the application of elementary data to his field practice, enjoys many advantages over his ancestors of the olden time, whose knowledge of chemistry was much less perfect, and who laboured under innumerable disadvantages besides in carrying out into practice the limited knowledge which they thus possessed.

This naturally brings us to the next division of our subject

—improved field implements, and their use as compared with the few rude instruments of the olden time. The proper aëration of the land is synonymous with its proper cultivation, and its proper cultivation with the use of improved implements. No doubt the practical rule applies here—viz., to make the best use of the implements you have, the most improved description being beyond the reach of the pockets of very many of our most successful farmers. To this old familiar rule anybody may subscribe. It is, however, no argument against the use of most improved field implements, but the contrary; for if the ploughman makes good work with a bad plough, he will obviously make better work with a good one. But the plough thus individualised is only quoted accidentally; for it is on the auxiliary implements of modern invention—as subsoil ploughs, clod-crushers, grubbers, and the long list of tillage implements of this class—that the more successful aëration of the land depends. So important has the use of these become, that many farmers would find it difficult, if not impossible, to get on successfully without them. Under the old practice, stiff tenacious clay lands were subject to two opposite and adverse extremes; for in dry weather it was often impossible to prevent them getting cloddy like brick-bats, and in wet weather to prevent them running together like well-tempered mortar. To break the clods involved an amount of trampling with the horses' feet as greatly to consolidate the subsoil; and to work the land when wet poached it with the feet of the teams, every foot-print becoming a pool of water the first shower of rain, which is now avoided under good management.

It is, however, to the proper use of steam-culture implements that farmers are now to look for the most successful mode of aërating the land. The feet of horses always do an immense deal of harm—more than many imagine; for as the ground under their feet form the fulcrage of the leverage of the animal-hauling apparatus, it follows that the consolidating pressure is much greater than the weight of the horses themselves. Under steam tillage this is obviated, the fulcrage being at the headland. It is even more than obviated, especially by the use of implements constructed on the principle of grubbers, usually termed cultivators; for in smashing up the staple they at the same time less or more tear up and loosen the subsoil; and, under proper management, they do so in such a manner as to give the land the requisite degree of aëration it requires, letting in an abundance of air when such is needed, and "keeping in the sap" when such is the rule. It requires more experience than farmers yet possess to put a proper estimate upon such advantages in favour of steam culture in the aëration of land.

Lastly, under ordinary good management and seasons, modern systems of manuring and cropping are in favour of aëration, as compared with the old practice. Guano, bone-dust, and other artificial manures, it is true, do not keep the land so open as farmyard manure; but keeping the soil open thus is often not successful aëration, and the difference in this respect is even in favour of artificial manures for the aëration of clay lands when such are properly cultivated, while, to open, porous soils, their use is attended with advantages not easily estimated. Indeed, under the old practice, the most successful mode of applying farmyard manure was in the form of compost, or in a greatly rotten and subdivided state, so as to permit of its being thoroughly incorporated with the land, without giving it an undue porosity. In other words, clayey soils and porous soils are both liable to be too much aerated during the summer-time; and with artificial manure the sap is more easily retained in the soil than with farmyard manure. It must be admitted that opinion is somewhat divided on this point, many farmers preferring farmyard manure on clayey land, others half-and-half; but such generally turn upon special management in other respects, rather than upon the use of guano, &c., in aëration, for, without plenty of sap in the land, its proper aëration is impracticable. But farther into details of this kind our limits will not permit us to enter at present; and, with regard to the modern system of alternate cropping, as compared with the old outfield and infield system, the advantages in favour of the former are so many and manifest as hardly to admit of enumeration. SURREY.



## AGRICULTURAL EDUCATION.

The following paper and correspondence on this subject was read by Mr. D. CUNNINGHAM, of the Ulster Model Farm, at a recent meeting of the Chemico-Agricultural Society of Ulster:—

Agricultural education has not received such attention in this country as its importance deserves. That there is a necessity of some systematic course of agricultural instruction being adopted in our rural schools no one for a moment can deny. The science of agriculture may be neglected in countries where there is a wide extent of new and virgin soil, which demands little or no skill to make it produce abundantly, and, where one portion does become exhausted, new fields can be occupied and the old ones neglected; but in this country, with a dense population confined to the same ground, we require the aid of science to enable us to keep up the fertility of our fields. By the aid of education in a right direction in our national and other schools the art of agriculture can be made a most intelligent and pleasant pursuit. The boy who is to become the future farmer leaves school and commences work upon the farm without one idea ever given to him as to the nature of the soil out of which he is to obtain his livelihood; knows nothing of the beautiful laws of vegetation; has not the slightest idea of races and breeds of cattle; and with not one general principle to guide him and make intelligent the labour he is performing. Now, all other pursuits and professions demand some previous preparation, by instilling into the mind, when young and plastic, those general principles and teachings which lie at the foundation of all success. One fact, however, is certain, that in the majority of our schools there is nothing taught which has special bearing upon the future education of that large class whose lives are devoted to the cultivation of the soil. We have schools, and colleges, and academies for the education of the youth for all other callings in life, but none, I may say, for the farmer, who requires as much, if not more, than any other class, a special training for his profession. Labour to a boy is irksome at the best; but it is worse than this; it is deadening to his mental faculties at a time when they are most capable of being quickened and improved. If he had been taught the elementary principles of geology, of agricultural chemistry, of physiology, and of botany at school, his intellect would be excited, and this education would give dignity to his profession and his labour, and there is no calling would rank as high as that of a farmer, and he would enter upon it sufficiently educated to make it successful and profitable. He would then be able to attend and take an active part in such societies as this one, join farmers' clubs, in which lectures upon scientific subjects would be given, and papers upon agricultural matters be read and discussed.

It is as important to a boy to know why deep ploughing prevents the severities of drought, or why manure acts differently on different soils, or from whence plants obtain their carbon, as to name the rivers of Ethiopia or Siberia, or tell how far distant the planet Jupiter with his moons is from the earth, or to know how to extract the cube root. They should understand, from germination to maturity, the process of growth, and the food of every crop and of every vegetable raised. They should know why it is that bones and similar compounds are applied to one kind of crops, and why ammoniacal manure to another class, as cereals. Our system of school education is seriously defective in this respect; arithmetic, geography, and grammar are studied to the neglect of more important and attractive branches of knowledge. Teachers should be trained in the knowledge of chemistry and botany, as well as in algebra and geometry.

The foundation of all secular pursuits, the moving spring of all worldly enterprise, is found in the cultivation of the earth. Husbandry, and especially that department which we denominate agriculture, is the great central wheel in the mighty machinery of business, which sets all other wheels in motion. But for this, the ocean would never be whitened with canvas, and the timber and iron now converted into mighty ships would remain unmolested in its native forests and in its bowels of the earth. But for this not a spindle

would have been set in motion, nor the walls of a manufactory ever have been raised. But for this no banking house would exist, and no investment of great moneyed capital have been made to carry forward useful arts. The cultivation of mother earth forms the basis of all secular business. From this source is to be derived, as long as the world stands, everything that goes to enrich its inhabitants. It is the great central sun around which all business pursuits revolve, as so many satellites, borrowing all their light and heat from this one fountain.

It needs no argument to prove this; it requires but a moment's reflection to see that if agriculture and its legitimate fruits should cease, the wheels of business of every department would come to a stand-still. Agriculture is, therefore, the most important and noblest of all arts; and it is most important that agricultural education should be encouraged and grafted upon our present school system.

The following letters, which, with your permission, I will read, show the facility by which the schools under the National Board can be attached to the agricultural department, and also the success which has attended the teaching of agriculture on a farm under the patronage of the Earl of Beaconsfield, county Kilkeny:—

*4, Drumcondra-terrace, Dublin,  
1st July, 1888.*

MY DEAR SIR,—Having been absent in the south, I was prevented sending an earlier reply to yours of the 30th. ult.

It is now comparatively easy to get national schools recognised in the class 'ordinary agricultural.' All that is essential is, that at least two statute acres of land be connected with the school, either adjoining it or at a convenient distance; that offices (at least a byre and piggery) be erected upon, or a guarantee given for their speedy erection in the event of a grant being made in aid of the agricultural department; that the farm be cultivated in some approved rotation of cropping; and that the teacher, who need not have been specially trained in the agricultural department, nor even in the literary department, be a man of fair ability, with a reasonable knowledge of the theory and practice of agriculture. In fact, I have known many teachers who knew very little of either the theory or practice of agriculture at the outset, by their own application, aided by my examination and instruction at my subsequent visits, become very intelligent and successful agricultural teachers in a short time.

It is not rendered imperative on the pupils composing the agricultural classes in such schools to work on the model farms, as it has been found that a prejudice exists against their working in the farms in the evening during recreation time, when their doing so would not interfere with their attention to the ordinary school business. I invariably suggest to the teachers to get them to go and assist in the farm operations occasionally as a voluntary act on their part, but never to enforce such an arrangement. Even where they don't work on the model farm, they can see it and become familiar with the course of cropping and with other details of farming economy. The course to be adopted by any manager disposed to establish an agricultural department in connection with an existing national school, where the necessary amount of land is available, is to apply to the secretaries for the usual official form of application; when such is returned to the offices, after being filled up by the managers, I will be directed to visit and report, which I will do as soon as possible; and if the circumstances will be at all favourable, I recommend it to be received into connection. The board invariably acts on my recommendation in such matters. I also give all the advice and information in my power to the teachers, to enable them to remedy any existing defects, put everything in proper order, and visit the department successfully.

Hoping this information may supply all that Dr. E. B. requires, I remain, dear sir, yours very faithfully,

M. BACON.

Mr. D. Cunningham.

Pillown, 2nd July, 1887.

DEAR SIR,—In reply to yours respecting small farms being attached to each of our rural national schools, I would, from my experience, strongly advise any gentleman or landlord who has the well-being of his people at heart to do so, because I know and believe that a vast amount of instruction is imparted in agricultural knowledge and other sciences connected with agriculture, which must prove beneficial to a rural population.

More than one pupil who has left me has expressed to me the benefit which he has derived from the instruction imparted on agriculture when at school, and even those who have not turned their attention to agriculture have told me that the rudiments of chemistry which they learned at school were of the greatest possible benefit to them when prosecuting their studies at college. A prejudice to a certain extent does exist amongst some parents regarding their children taking a part in the work of the farm for a short space of time during literary instruction; but I never found a boy to object; and where I found the parent had a prejudice I was always careful never to interfere with it, but to pass it over quietly, taking no notice of its existence. A judicious teacher can always manage those matters without raising active opposition. However, in this matter a great deal will always depend on the interest evinced by the patron of the school. I always found it best never to

force the pupils to work; and if I found any pupil had an aversion, or his parents had prejudice, to his working, to take no notice of it; but I always refrained asking such pupils to engage in the work, as I had always plenty of volunteers to work, and after a time those who had an aversion soon got over it, or got ashamed of it. I frequently take out all the agricultural pupils upon the farm, and explain any practical operation then going on. All should attend this.

Agricultural instruction is given to all the pupils in the third and higher classes for half an hour daily, and I take the opportunity of play half-hour for practical work on the farm, so as to interfere as little as possible with the ordinary course of literary instruction. The pupils do not engage daily in practical work, as I frequently have nothing for them to do, or work which they cannot perform.

An industrial class works two hours daily. The teacher may arrange either before or after school hours, as best suits his own convenience. This class is paid 6d. per week either by the teacher or patron and 'board.' To take the lowest possible view of the benefit of adding small farms to our national schools, they will be found to be a great pecuniary benefit to the teachers, many of whom are hardly able to support themselves in that position which they should occupy in society.

R. S. CUNNINGHAM.

Mr. D. Cunningham.

## MILK.

In some countries, as Switzerland, it is the chief diet of the peasantry; and everywhere, if easily obtained, it is largely consumed. 76 per cent. of the labouring classes of England make use of it. [We fear this is a prodigious over-estimate. Ed.] 23 per cent. take it as butter-milk; and 53 per cent. as skimmed milk. In Wales, the average consumption of it by farm-labourers is  $4\frac{1}{2}$  pints per adult weekly—South Wales averaging only 8 pints, while in North Wales it is  $7\frac{1}{2}$ . In Scotland the consumption among the labouring classes is still larger, for it amounts to  $6\frac{1}{2}$  pints per head weekly, and in Ireland it reaches  $6\frac{1}{2}$  pints. Those who take least of it are the poor in-door operatives of London; the weavers of Spitalfields, for example, use only about 7.6 oz. per head weekly, and those of Bethnal Green only a fraction above  $1\frac{1}{2}$  oz. per head. When examined under the microscope, milk is found to consist of myriads of little globules of butter floating in a clear liquid. On standing for a few hours the oily particles rise to the surface and form a cream, the proportion of which is the test of quality. Cows' milk is heavier than water in the proportion of from 1030 or 1032 to 1000. Asses' milk is the lightest, for its gravity is only about 1019; then comes human milk, 1020; and, lastly, goat and ewes' milk, which is the heaviest of all, from 1035 to 1042.

The quality of milk varies with the breed of the cow, the nature of its food, and the time of milking, for afternoon milk is always richer than morning, and the last drawn than the first. Taking, however, the average of a large number of samples, it may be said that cows' milk contains 14 per cent. of solid matter, 4.1 of which are casein, 5.2 sugar, 3.9 butter, and 0.8 saline matter. The relations of nitrogenous to the carbonaceous is 1 to 2.2; but as fat is  $2\frac{1}{2}$  times more powerful than starch, the relation may be said to be as 1 to 3.6.

When milk is heated to the boiling temperature, the casein is coagulated to some extent; and if the milk has stood before it is heated, so that the cream may rise, the coagulum includes the cream, and makes the so-called Devonshire or clotted cream.

Acids also coagulate the casein, and produce a curd, as in the making of cheese and curds and whey.

Cream is rich in butter. It contains 34 per cent. of solid matter, 26.7 of which are butter, and its gravity is about 1013.

Skim Milk is the milk from which the cream has been removed. It contains only about half as much butter as new milk, and its gravity is about 1037. In all other respects it is similar to new milk.

*Butter Milk* is the residue of the milk or cream from which the butter has been removed by churning. It is still poorer in fat than skim milk, containing, in fact, only about half as much. Unless it is very fresh, it is generally a little acid, and frequently the acidity has gone so far as to set the milk into a kind of jelly.

The *Whey* of milk is the opalescent liquor from which the curd has been removed in making cheese. Although not highly nutritious it still holds a little casein in solution, as well as the sugar and saline matter of the milk. It is rarely used as food by the poor, but is given to pigs. In Switzerland, however, it is considered to have medicinal virtues, especially for the cure of chronic disorders of the abdominal organs, and the treatment, which is somewhat fashionable, goes by the name of *cure de petit lait*. There is a popular notion that the whey of milk is sudorific, and hence we have our wine whey, cream of tartar whey, alum whey, tamarind whey, &c., when the milk has been curdled by these several substances.

*Cheese* is the coagulated product of milk, obtained by the addition of rennet or a little vinegar. When cream is coagulated it makes cream cheese, which will hardly bear keeping, but must be eaten fresh. It contains about half its weight of butter, and a fifth of its weight only of curd. When cream is added to new milk, and the mixture is curdled, it forms very rich cheese, as double Gloucester and Stilton. When new milk alone is used the cheese is less rich, but still of high quality, as Cheddar. When an eighth or a tenth of the cream has been taken off, it produces the quality of cheese which is most sought after, as single Gloucester, Chester, American, &c. And when all the cream has been removed, and the skim milk is curdled, it forms the poor cheese of Holland, Friesland, Suffolk, Somersetshire, and South Wales.

From analyses of two of the most important of them, it will be noticed that they contain from 56 to 64 per cent. of solid matter, about half of which is curd. In skim-milk-cheese the curd amounts to 44.8 per cent., and the fat to only 3.6; whereas, in Cheddar, the curd is only 28.4 per cent., and the fat 31.1. In nutritive power, therefore, especially in nitrogenous matter, cheese ranks high, and is a valuable article of diet; but there is a limit to its digestibility, and hence it cannot be taken in large quantity. Considering its price also, it is hardly so profitable as many other foods; although, where good skim-milk cheese can be purchased at from 2½d. to 3d. a lb., it forms, in small quantities at a time, a good adjunct to bread.—*Dr. Letheby before the Society of Arts.*

# "THE FARM OF MASNY."

[TRANSLATED FROM THE FRENCH.]

The département of the North is the best cultivated districts of France, and one of the best in the world. The land there produces thrice as much as the average of the country, and the population is three times as dense. In 1863 a competition was opened between the best managed farms of this prosperous region, and the farm of Masny obtained the prize. This farm therefore ought to exhibit one of the finest examples of agricultural wealth; and thus thought M. Barral, the Director of the "Journal of Agriculture," who has devoted an entire volume to the examination of Masny; and so thought also, with him, all those who read that interesting description.

The farm of Masny belongs to three brothers, Messrs. Fiévet, one of whom is a colonel of artillery, the second a counsellor at the Court of Douai, and the third a farmer. This last has for thirty-five years farmed the family estate, which now comprises 232 hectares (or about 572 acres); an extent remarkable for the département of the North, which is in general a small-farm country. Fifty hectares belong of right to M. Constant Fiévet, director of the farm; one hundred and seven are the property of his two brothers; and seventy-five are hired of different proprietors. Plans and designs annexed to M. Barral's work, show the house and farm-buildings. These, valued at 180,000 francs (or £5,200) are the personal property of Constant Fiévet. A glance at the distribution of the crops shows at once the exceptional character of the farm of Masny:

	hectares.		hectares.
Beet-root ..	78	Natural pastures ..	3
Wheat ..	75	Rye ..	6
Flax ..	28	Gardens, buildings,	
Oats ..	15	roads, &c. ..	6
Artificial grasses ..	12		
Winter fodder ..	14	Total ..	232

What strikes us here is the almost complete absence of natural meadows, the limited extent of the artificial pastures and winter-fodder (a mixture of rye and tares, cut green for the cattle), and the extension given to beetroot. A sugar factory is annexed to the farm: the beetroot produces at Masny 50,000 kilos. per hectare (or about 28½ tons per acre), which at 20 francs (about 16s. 8d.) per 1,000 kilos., gives a gross produce of 1,000 francs. In spite of this large return, the roots raised on the farm are only about a fourth of the requirements of the sugar-works, which consume annually from 10 to 20 million kilos. of beetroots, manufacturing from it about 10,000 sacks of sugar. All the pulps, the residue of this manufacture, are charged again to the farm at the rate of 12 fr. 50c. (10s. 5d.) per kilo., and are employed in feeding the cattle. The water from the works is used for irrigation, and furnishes an abundant source of manure.

The wheat covers nearly the same extent as the beet-root, or about one-third of the area of the farm, and yields an average of 32 hectolitres (about 88 bushels) per hectare (or about 35½ bushels per acre). In favourable seasons the return has risen to 38 hectolitres, and in some places they have even reported 69; and reckoning the straw, the gross product of wheat reached almost that of the beet-root, or 1,000 fr. per hectare. The flax gave a still greater return, its mean product being from 1,200 to 1,500 fr.; other crops disappear before these. Oats produce 60 and sometimes up to 80 hectolitres per hectare (from 165 to 220 bushels, or from 66 to 88 bushels per acre); but the low price of this grain greatly restricts the net profit. Rye serves only to supply straw for the bands in harvest. No potatoes are cultivated, although many are grown in the département of the north.

M. Fiévet cultivates with horses, and has thirty-seven working horses. The dairy is small, consisting of seven Flemish cows, the milk from which is all consumed on the farm. There is no piggery, properly speaking, the true speculation consisting of fattening horned cattle and sheep. M. Fiévet purchases lean bullocks, and sells them again fat; 500 head of large beasts, and 2,400 sheep pass thus every year through his

sheds. The process lasts about three months, which gives an average of 125 cattle and 600 sheep at once. The benefit derived from this operation chiefly consists of the dung produced by the animals.

Upon the whole, the gross product of the cultivation of the cattle, without reckoning the sugar-works, is about 850 fr. per hectare, or 200,000 fr. (£8,000) in all. In this, however, is included the straw and the seed-corn; and the gross product realizable in money appears to be 170,000 fr., or 740 fr. per hectare. These large results are not obtained without a powerful working capital—M. Barral estimates it at 370,000 fr., and with the buildings, at 500,000 fr. This gigantic capital is usually divided between the four departments destined to receive it: firstly, the live-stock, horses and cattle; secondly, the dead-stock, implements of husbandry; thirdly, the manure and the crops on the ground; fourthly, the crops stored and money in hand. The collection of machinery is particularly complete and good.

This is certainly one of the finest specimens of large farming that can be seen; and we ought to thank M. Barral for having made it known to us. Accounts carefully kept have enabled him to enter into the most minute details; and after having ascertained the general results, he compares them with those I have given for France and England taken together, and shows for Masny a decided superiority. I have only one small rectification to make, which reduces a little the difference without altering anything of the basis. When I valued at 100 fr. per hectare the gross average product of agriculture in France, I comprehended in the calculation the entire country, without deducting from it the uncultivated land and the woods. The cultivated land is estimated at 150 fr. (or £6) per hectare, which rose to 200 fr. (£8) in the north-west region, and exceeded 300 fr. (£12) in the département of the North. The same observation applies to England, the gross product of which ought to be taken at 250 fr. (£10) for the cultivated land, rising sometimes up to 500 fr. (£20). It is with these figures that we must compare the returns of Masny, and it is still enormous.

The realizable products being taken at 170,000 fr., they are approximately distributed as follows:

	France.
Rent of the land .....	30,000
Interest on the working capital .....	18,000
Rental of buildings .....	6,000
Taxes .....	4,000
Expense of culture and maintenance ..	80,000
Profit on the whole .....	32,000
Total .....	170,000

These figures are not exactly those given by M. Barral, because he thought he ought to make an average of eleven years; but this average does not represent the last condition of Masny, since the culture has been constantly a progressive one. I have attempted to separate the last results. There is also between us a slight difference in the manner of calculating the rough product. M. Barral makes a very proper distinction between what he calls the *cultural* gross product and the *social* gross product: the first comprises the straw and the seed-corn that are not included in the second; but it is necessary also to deduct the equivalent of food and the imported manure. For part I have always added to the passive portion of the cultivation the food and the purchased manure, by including them in what I call the *accessory expenses*, and I ought consequently to add to the *active* all the realizable products.

According to what precedes, the remuneration of the farming of Masny has now reached 56,008 fr. per annum, viz., 18,000 fr. for interest on the working capital, 6,000 fr. for the hire of the buildings, and 32,000 fr. for the profit properly called, or about 11 per cent. on the capital, including the value of the buildings (or 500,000 fr.), and 14 per cent. on the working capital of

370,000 fr. I have here a last observation to make: M. Barral carries the interest of the working capital into the accessory expenses, whilst I have always confounded it with the farmer's profit. We may separate it if we wish, but then it will be necessary to make it a separate entry.

Of this increase of the interest on the working capital the proportion of the manager does not exceed in France one (an average a tenth of the gross product, and in England a fifth: at Masny it amounts to a third. On the other hand, the rent of the land, which ordinarily takes one-third, does not quite reach the sixth; and the wages and other expenses, which generally exceed the half, are rather below it. The 80,000 fr. of cultivating expenses, &c., are divided as follows:

	France.
Manures purchased.....	20,000
Food purchased.....	20,000
Various wages.....	40,000
Total.....	80,000

On dividing the whole by the hectare we find nearly the following result:

	France.
Rent of the land.....	131
Interest of capital.....	78
Rent of buildings.....	26
Taxes.....	18
Accessory expenses.....	174
Wages.....	174
Profits.....	189
Total.....	740 (or about £29)

These figures represent the result of intensive culture, which, however, does not prevent M. Fiévet from sustaining losses. For instance, the year 1861 closed its accounts with a deficiency of 34,000 francs; but, on the other hand, that of 1857 yielded a profit nearly double the average.

After testifying to the importance and originality of the work of M. Barral, I ought to say a word on the doctrines he attaches to it. I am not always in agreement with him, either in regard to the definition of the terms or in the conclusions he draws from the facts; and I believe I cannot do better to show him my estimation of his work than by frankly discussing his propositions. In stating the extraordinary profits of the farmer of Masny, M. Barral adds: "This profit is generally below the rent in agricultural statistics; but at Masny, on the contrary, it is superior, and we believe that this result is the same on all prosperous farms." If M. Barral had confined himself to saying that, the more perfect the agriculture, the more profitable it is to the farmer, he would have kept to the truth; but he has too much generalized what is still only an exception. Up to the present time there are few farms even in England on which the farmer's profit exceeds or equals the rent of the land, and yet it cannot be denied that many of them are prosperous. All depends on the working capital compared with the fixed capital: the larger the former the greater the profit; and this is only just. Thus the rent of the land is not arbitrarily regulated. The capital belonging to the proprietor is in most cases very superior to the working capital, the former returning only  $2\frac{1}{2}$  to 3, whilst the latter ought to yield 10 per cent., and yet the difference of capital is so great that the amount of income of the first greatly exceeds that of the second.

According to M. Barral, there is no other *net-product* than the profit of the farmer. It is not thus that the French economists of the eighteenth century have defined that word, of which they have made great use. According to them, the net-produce includes, with the farmer's profit, the rent and taxes. This produce is divided into three, because the proprietor, the farmer, and the State have contributed to its formation. M. Barral places the rent and taxes in what he calls *charges of agriculture*. This term may be useful in current language, but it does not express a correct idea. The rent and taxes are charges only so far as the assessment of them is excessive: in a just proportion they no more constitute charges than the farmer's profit. Suppress the rent and taxes, and the proprietor will no longer bear those expenses that are called "land advances" (*avances foncières*), nor will the State execute any more public works, nor guarantee justice and security: all will be stopped. In what proportion have the proprietor, the farmer, and the State contributed to the produce? That is the

whole question. We can understand M. Barral's predilection for the chief manager of the farm; but the workman who ploughs, sows, and reaps may also consider himself as the sole agricultural agent. Would he be right? In order to work the land he requires a plough and horses; to sow he wants seed and manures; and to reap, carry away, and thrash the crops he wants implements and carriages: in order to sow and crop properly, by varying judiciously his cultivation and the introduction of new improvements in his processes, he requires a mind that can direct: lastly, to realize his wages he must sell his produce. It is the chief manager of the farm who provides everything, and who consequently to a great extent contributes to the result, although he does not work with his own hands.

In the same manner, in order that the chief manager may exercise his industry, he must find buildings already prepared, lands opened and improved of old, irrigations, drainings, meadows, a course of husbandry, all established. It is the proprietor who supplies them for him. If he had to do with the naked land, it would not produce a tenth. We can cite cases in which the rent has increased, from an element which has been much talked of—the natural fertility of the soil; but these cases are rare and transient. Analyze the venal value of the land in the most fertile country, and you will find that the value of the naked soil stands for nothing, or nearly so. It is the capital sunk that does everything. In all cases, this original value, supposing it to exist, has paid only the first occupant. The actual possessor has acquired it by the same title as other capitalists. "Rent always increases," says M. Barral, with regret; but is it not customary that the capital sunk on land returns only about half the interest of floating capital, and is it not just that the second half should capitalize itself? The proprietor relinquishes part of his income in order to increase his capital: the land acts as a savings-bank.

In a backward state of agriculture, rent, profits, and wages descend together; and when it improves, all rise at once. I acknowledge without hesitation that the most important element is the profit of the farmer, because it proves the application of the greatest capital and the greatest skill in the cultivation. If that part is weak in France, it is not because the rent is too high, but because the capital and skill are too frequently wanting: if it is high in England, it is because both these are present. The farmer of Masny has an exceptional income because he has an exceptional capital and superior skill. The rent of the land should also have increased in order to bring it into the ordinary condition, with the hire of the buildings, which belong generally to the proprietors; and it may be that from family considerations the rent is not raised to the same extent as elsewhere.

The working capital amounts to 1,800 francs per hectare (£64, or nearly £26 per acre). Would the Masny farmer have been able to gain so much if he had spent less? This is a delicate question which I do not undertake to solve. All we can say is, that with half or even one-fourth of that capital many farmers make a good profit. I have valued the working capital at an average of 100 fr. per hectare in France and 400 fr. for England. But these figures still embrace the total surface of the country; and in reducing them to the cultivated land, we make it 150 fr. for France and 500 fr. for England. We should be glad to find that the average of the French capital was doubled. Even at Masny the working capital did not begin with the amount it now is: it was scarcely half two years ago, and still longer back it did not exceed a fourth: the Masny farm, however, from that time was known and esteemed, as may be learned by the report of the Inspectors of Agriculture on the Département of the North in 1843.

In spite of his *definition exclusive*, of "the *net produce*," M. Barral attaches still greater importance to the gross produce. "The gross produce," he says, "is of more consequence to a country than the net produce: the latter specially interests the farmer of the land; the gross produce is what concerns the country." Here, again, I cannot endorse his opinion. The net produce, even understood in the largest sense and comprising the rent and taxes, interests the country as much as the gross produce. Without the hope of increasing the net produce there would be much less produce, which would at once suffice to show the narrow tie that unites them; but there is another point of view which reveals in the net produce the principal agent of civilization and wealth. This excess over the expense of production serves to support that part of the

population which contributes nothing to agriculture. If the net produce did not exist every one ought to work the land, and there would remain no one to work at manufacture, commerce, or the liberal professions.

In treating on chemical statistics, M. Barral raises another class of questions, which has also its importance. He has no difficulty in showing that, with such products, the exportation of elementary principles ought to be enormous at Masny. Such large quantities of wheat, meat, sugar, flax, cannot be sent away annually off 230 hectares without leaving a great void. M. Barral estimates the annual loss at 93 kilogrammes of azote, 96 of phosphoric acid, and 49 of potash, per hectare. I accept these figures conditionally; but they are not in my department. M. Barral afterwards calculates the restitution effected by the manure; and he finds that in the pulps of the sugar factory, the cake from the linseed and colza, and the defecating scums, commercial manures, &c., M. Fiévet annually imports a quantity more than equivalent of azote, four times more phosphoric acid, and rather less of potash, from whence it follows that the richness of the soil goes on increasing, except in potash. In order to repair the waste of this latter element, M. Barral advises M. Fiévet to annex to his sugar-works a distillery for molasses, or to have recourse to an importation of nitrate of potash, to be spread over his dung.

Hitherto all is for the best; but M. Barral adds, by way of conclusion: "Chemical statistics can only be obtained upon an estate in progress, on condition of a supply from without superior to the exportation of agricultural products. As soon as a domain exports, it is necessary to import directly, by the efforts of the farmer, or indirectly, by particular natural conditions. Those who have sought the equilibrium or the progress in the simple rotation of crops, in a certain relation between forage crops not irrigated and corn lands, have only removed and accumulated errors." This absolute theory appears to me in contradiction of facts. The result would be that every farm that exported produce in whatever proportion, without importing manures, would be impoverished. Now all lands dispose more or less of wheat, meat, and wool; and very few of the farmers purchase manure. Many parts of our soil have been cultivated for centuries, with a constant exportation of products, without any importation of manure; and, far from exhibiting signs of exhaustion, they display an increasing fertility. According to M. Barral's theory, they ought to have been barren long ago.

This does not show that it is not good to purchase manure, because an increase of fertility never does harm, and there is a certain degree of production that renders such an importation necessary; but it must be acknowledged that other means exist of repairing, to a certain extent, the losses caused by consumption. These means are two—namely, the primitive one and the improved one, the bare fallow and the alternate cropping. During a long time the fallow was sufficient. While the population was comparatively small, it was enough to let the soil rest for one year in two or three, in order to ensure the perpetuity of the crops. Even at the present time the fallow plays an important part; for there are not less than five million of hectares under fallow in France (nearly 12½ million acres), and this proportion suffices to repair the losses of half our territory. The alternate husbandry enables the other half, the cultivation of which is more extensive, not only to sustain but to increase its fertility. To deny the theory of alternate cropping would be to erase by a stroke of the pen the demonstrations of experience. The purchase of manure gives one element more, powerful and rapid. But, setting aside a few brilliant exceptions, as Masny, the rotation of crops is the rule: it is to it that we have owed, do owe, and shall owe the greater part of our progress. Applied with harmony, it has sufficed to double our present products.

The chemical theory of M. Barral is incontestable in itself; for we must return to the soil what the crops have taken away, and above that. It only remains to know how. Nature has provided for it to a certain extent, since the fallow is sufficient to re-establish the balance in a limited state of production. Chemistry will teach us some day—it has begun to teach us—how to reproduce in the soil, by the single influence of rest and atmospheric agents, the azotes, phosphates, potash, carbon—all the elementary principles. It will not give us an explanation of the fact; but the fact will not be the less certain. In the same manner, experience proves that, by the side of crops that exhaust, there are others that fertilize: and

if chemistry does not completely explain this phenomenon, it is because she does not know everything. Consult the first farmer you meet, and he will reply that, by appropriating to cereals only one-half, one-third, or one-fourth of the farm, according to circumstances, and devoting the rest to meadows and root-crops, consuming by cattle all the green crops, and restoring to the soil the straw and other residues, we largely repair the losses. The farm-dung is the principal agent of this restitution; but it is not the only one. The sun, the water, the light, the heat, all contribute to it; and Nature has endowed certain plants with the faculty of appropriating by their vegetation what others dispense with. One of the greatest proofs of this property is shown in what we call green manures—that is, the ploughing-in of green crops, such as buckwheat, colza, spurry, lupins, &c. Experience proves that we render fruitful by it the most impoverished soils. Green manures are at this moment transforming the sands of Prussia.

The necessity of importations of manures is explained at Masny by the immensity of its produce. M. Fiévet, let us remember, has almost renounced pastures both natural and artificial, and he exports a part of his roots. These means of fertilisation are wanting with him, and he has all the more need of foreign help. In the same département of the North, where manufacturing agriculture enjoys so much favour, we find still more of a cultivation which feeds upon itself, without at the same time degenerating. That département possesses 90,000 hectares (or 222,187 acres) of natural pastures, and 50,000 hectares (or 123,437½ acres) of artificial pastures, which proves that they have not renounced the ordinary means of making manure. Previous to 1789, the sugar-beet was unknown, and Flanders was then the first agricultural country of France. Certainly, I will say nothing ill of the sugar-beet. No one admires more than its future that magnificent culture; but a doubt rests upon its value from the insufficiency of its market. The consumption of sugar and alcohol cannot be extended so much as that of meat and bread, and these two products of beet-root meet with formidable competition in Colonial sugar and grape brandy. The great mass of French farmers ought to seek elsewhere for their profits and manures.

Notwithstanding the decisiveness of his final declaration, M. Barral makes several concessions in detail. The first relates to the carbon, which is exported from Masny like other elementary matters, and is not renewed by special importations. "In the case," he says, "of a husbandry like that of Masny, which rests essentially on the production of the sugar-beet, there is a great quantity of carbon exported; but an indirect proof of the excess of re-importation is found in the increase of the returns of the estate. It is necessary to consider that the subterranean and surface-waters bring much carbonic acid in solution; one part of the crops of the farm are aprooted, which draw from the subsoil, and bring to the surface: nourishment, which enriches the bed reached by the plough. The rain-waters wash the atmosphere of a locality, in which there are so many chimneys vomiting enormous quantities of carbonic acid, and are richer than anywhere else in a gas the source of the carbon of plants. It is thus that the house of lands of Masny has not decreased." Cannot that which takes place with carbon do so likewise with the other elements, although we have not yet been able to detect all their transformations?

M. Barral makes a distinction between irrigated pastures and those not so treated. He appears to admit that irrigation brings sources of manure which are wanting in other meadows. The waters of irrigation ought, in fact, in passing over the land to convey to it fertilising principles; but nothing proves that meadows not irrigated have not also the means of probably decomposing the water, the air, and the soil. When we compare the countries in which irrigated natural pastures abound with those that may be said to have only artificial pastures, we find the second generally richer than the first. The départements of Seine-et-Oise, Seine-et-Marne, the Oise, the Somme, have few natural meadows, and hardly any that are irrigated; yet they rank amongst the richest. On the contrary, the départements that possess the most irrigated meadows—the Creuse, the Haute-Vienne, and the mountainous countries in general—are reckoned amongst the least productive. This difference arises undoubtedly from a variety of causes; but it proves in all cases that the irrigated meadows

have not the superiority over the artificial pastures that is attributed to them.

The authors who entertain the same theory as M. Barral bring in support of their opinion historical examples. "See," they say to us, "the oldest countries inhabited by man; they are exhausted. Look in particular at Sicily; that island has consumed the phosphate of its soil in sowing wheat to the Romans, and can no longer produce anything." This observation would be true, but it would prove nothing against alternate husbandry, which was nearly unknown to the ancients. But there is more; for the facts do not say what they make them say. It is not cultivation that has impoverished Asia Minor, for example; revolutions and wars have destroyed the cultivators, and uncultivation has followed depopulation. Fertility always returns with the return of labour. Sicily, amongst others, does not exhibit those signs of exhaustion which they attribute to it; she is proportionally as well peopled as France, and it produces wheat enough to furnish a considerable exportation. It certainly raises more than formerly; for that pompous phrase "granary of the Romans" was applied to the city of Rome alone, which did not draw its supplies from Sicily only, but laid under contributions also Italy and Africa.

It suffices to bear in mind the feeble means of navigation known to the ancients, to reduce to their proper value those importations of grain which troubled the sleep of Augustus. England now purchases in all the world ten times more wheat than was formerly purchased for the city of Rome; and yet we do not find that the producing countries are exhausted in order to supply her with it where they are well cultivated. Wherever the alternate husbandry is not employed exhaustion quickly comes; but the alternate husbandry brings fertility. We must not confound the effects of bad cultivation with those of good. The destruction of the forests, for instance, is one powerful cause of barrenness: is that cultivation? No; it is devastation. A certain proportion of wood land is necessary, above all in southern countries: it is one form of cropping. Is it necessary to take a part of it for cultivation if Algeria and Castile have lost that element of equilibrium?

It is true, with alternate husbandry alone, production is not illimitable. There is a point at which the still-increasing exportation will render the balance insufficient; but that point is very distant from most of the land in France and Europe. The termination would be brought still nearer if the theory of the necessary importations was true to the letter. We cannot, by this system, enrich some without impoverishing the others. We see an instance of this at Masny. The manure applied is composed of the pulp of the beet-root, purchased off the farm. Now, what do those who sell these pulps do to escape exhaustion? The manures purchased consist chiefly of oil-cake, and how do the sellers escape the same fate? Masny is therefore a vampire, which preys on the substance of its neighbours; and these ought, in their turn, to support themselves on that of others, and so on. The alternate husbandry is less selfish, and seeks only from itself the means of support.

There is another species of manure which does not con-

stitute, strictly speaking, an importation, and which comes powerfully to the help of alternate husbandry. This is human manure, or night-soil. By restoring to the land the residues of those who have been fed by it, we add nothing to its substance, only returning what she has given. China affords a striking specimen of the strength of that manure. Although the land has fed with it for ages hundreds of millions of men, it goes on enriching itself; and we have still nearer to us, in Flanders, other proofs of this fertilizing effect.

Nevertheless, chemistry daily confers immense services on agriculture. It suggests to us, when the soil has reached a high degree of productiveness, the employment of special manures, the true title of which is auxiliary or supplementary manures. When the earth is naturally infertile, it teaches us to know in what it is deficient, and to give to it, not what it has lost, but what it has never had. Nature has denied to many lands the calcareous element, for example; and bringing lime or marl to them is not returning what has been carried off by cultivation. It is making, not repairing, the soil. The only fault of chemistry would be to deny what she cannot at present explain. The chemical theory of absolute exhaustion goes much farther than the famous theory of Malthus, for he admits of a progressive growth of agriculture and population, provided that it be not too rapid; whilst the system of chemical exhaustion leads to an immediate check, and even to an inevitable decay.

Let us therefore admire the farm of Masny, but without drawing from it consequences too decided. For the character and distribution of the crops, the large amount of the working capital, the proportion of net produce, the method of restoring exported substances, &c. this farm has very few equals. Let us recommend the employment of the largest possible working capital, and consequently the benefits it secures, but without injury to the rest of the land. Let us advise the employment of auxiliary manures, without offering them as the only means of safety. Let us speak of the wealth produced by the sugar-beet without attempting to generalize it. There is only one system that can apply to every case—to small as well as large farming—to poor as well as to rich countries: it is alternate husbandry with or without a basis of natural pastures, with the addition of night-soil. Above all, the soil should repair and enrich itself out of itself, the auxiliary manures only coming after.

M. Barral is not satisfied with this deep study of the farm of Masny: he proposes to pass in review the principal cultivations of the departement of the North, and we can only congratulate him on this undertaking. Agriculture is no longer a blind routine: it has become at once a science and a manufacture, and we render it the greatest service to the country by calling its attention to the best types. We have learned to see how much this class of interests justifies the meditations of theory and the efforts of practice. The whole social mechanism is employed on questions of rural economy, and the physical sciences find in it their principal applications.

L. DE LAVERGNE.

## EXHAUSTION OF SOILS.

To dilate upon the danger of exhausting the soil by a disregard of the inflexible laws which regulate its productiveness is unquestionably to tell an oft-repeated tale. But no less true is it that the necessity for reiteration exists. This disregard is most habitually and perversely displayed, particularly in new settlements. In older countries, where land is scarce and valuable, and population dense, it is impossible to pursue such a course of action; but where a large territory is opened up to the husbandman, a wasteful and negligent system of culture is greatly encouraged. The injurious results which must attend such a system have been most forcibly pointed out by men who have made the subject a life-long study; but in this matter the superiority of experience over precept is wonderfully illustrated. So long as the farmer can extort from the soil a crop sufficient to remunerate him for his trouble, he takes little note of friendly exhortations. The gradual decrease of

his yearly averages causes him some anxiety, but it is not until he actually feels the pressure of the diminished yield that he tolerates the advice of men whom he is apt to stigmatize as mere theorists. These remarks are specially applicable to the persons who form, perhaps, the bulk of our farming population. A commendable wish to become landowners on their own account possessed the majority of the labouring men who first emigrated to these shores. The many advantages held out to them to obtain money sufficient to purchase a farm, and the facilities for settlement offered under our land system, enabled them to become freeholders. The suitability of the soil for wheat-growing induced them to turn their attention to that branch of cultivation. Season after season they sowed the same kind of grain and reaped good crops. Their want of knowledge restrained them from making adventurous experiments in other branches of agriculture, and thus the process

of exhaustion was being vigorously promoted, for they ignored the demands of the soil for nourishment, or only met them in a rude and imperfect way, and, at the same time, they drained its supplies from it by an unvarying routine of wheat crops.

The best system of husbandry is that which most nearly approximates in its processes to the processes of nature. A field innocent of the interference of man sustains vegetation during one period of the year, and during another receives back by the decay of that vegetation the fertilizing elements which had been expended in its production. But where the seed is sown, and the produce is reaped and taken away, those elements are entirely lost to the soil, and some artificial method of replenishment must be resorted to. New earth may be turned up, but that will only be to be drained in time. Soils do not contain an unlimited stock of nourishment, and if their quality is to be maintained, they must be fed judiciously and regularly. Upon the subject of how they are to be fed volumes have been written, and we shall have frequent opportunities of advertg to the subject.

But pursuing still the subject of exhaustion, we have a notable instance of it in the history of American agriculture. The vast tracts of arable land in that great country were supposed to possess an almost inexhaustible fertility. But the croppings of many years have made an astonishing impression on their richness. It is not much over half a century since some of the Western States were first brought under tillage; but the scouring process which was so rife has diminished their averages from sixty bushels of maize to thirty, and in wheat the proportion of decrease is about the same. And throughout the Union the effects of reckless tillage are to be traced. Eighty years ago, and the virgin areas in New York returned twenty-five to thirty bushels an acre; now they cannot be said to exceed one half that quantity. In the Western States the yield has been reduced to seven bushels, and a widespread deterioration of land has given force to the vigorous warnings of men like Liebig, who have protested against the senseless waste of the resources of the soil merely because of their abundance. Whole regions have gone out of cultivation

because of this improvidence, and long years of laborious attention must be expended in restoring their producing capacities. Already measures are being concocted for retrieving the errors of the past, but the process will be an expensive one. The American farmers are beginning to realize by degrees that their patrimony is not absolutely without limit, and that the convenient plan of abandoning one allotment when its fertility begins to fail for another which had not yet been touched by the plough will not be available for ever. Besides, as they recede from the centres of population the difficulties of finding an accessible market become too immediate and practical to be overlooked. Canals and railways have been formed or are being formed to obviate these difficulties; but at present the cost of transit is a great bar to profitable cultivation.

If in America, with its fertile prairie wastes, the evil results of exhaustive tillage are becoming so manifest, it is highly important that the colonies of Australia should avoid so dangerous a precedent. They have not such large areas to operate upon, and those which they have cannot compare in richness with the agricultural territory of America. The average yield of twelve bushels, which here would be regarded as passably good, seems in the States to be treated as a notice to quit. There is, therefore, no very great analogy between the two countries in point of productiveness; but in reference to the danger of exhaustive tillage the analogy is striking. The mischief flowing from it has been felt in America, and is being felt in Australia; and when we speak of Australia, the remark has an especial bearing upon South Australia—the leading province of them all in respect to wheat-growing. It is absurd to talk of this as a necessary evil. Necessary it is as long as the farmers will inconsiderately keep to one kind of crop, and neglect the all-important subject of manuring; but hard-bought experience ought to teach them that such a mode of acting brings its own punishment. No doubt there are many who are not open to censure on the ground of neglecting these essential points, but that there are numbers belonging to the opposite class is indisputable.—*Adelaide Observer.*

## THE ECONOMY OF STRAW AS LITTER.

How to provide fodder and litter for stock kept on the farm during the ensuing winter and spring is to many owners of cattle a most perplexing question. As regards the economy of straw for litter, this can be best accomplished by using substitutes for straw. Ferns, rushes, and other coarse plants, when dried, can only be made partially available, as comparatively few farmers have access to those places where they grow. Dried peat earth is an excellent absorbent of liquid manure, besides they prove powerful deodorisers, so also is dry lime compost. Sawdust, when dry, is an absorbent of the liquid coming from animals, but none of these substances can be rendered generally applicable; and while they should be taken advantage of to the fullest extent possible, other substitutes for straw litter require to be used. The most generally available substitute for straw is the stubbles of corn fields. The stubbles should be uprooted by the use of grubbers on those fields where grass seeds were not sown in spring. The stubbles so uprooted should be freed of the adhering earth by harrows, passed over the field when the ground and the moved stubbles are dry. This necessitates the general use of the grubbers and harrows during a tract of dry weather. After the stubbles have been partially freed of earth, they should be collected into rows preparatory to being placed in heaps, for the purpose of drying them more thoroughly. Harrows armed with long teeth will generally collect the stubbles in rows, provided the person guiding the harrows raises them frequently and at equal distances. For this purpose a rope may be attached to each harrow, to enable the ploughman to lift the harrows without stopping the horses. A horse-rake will also prove an efficient implement for collecting stubbles which have been well freed of the earth which adhered to their roots. The portion of earth which will remain attached to the roots of the stubbles after the harrows have been passed two or three times over the field will depend in some degree upon the character of the crop, of the soil, condition as regards dry-

ness, and the state of the weather during the time that the grubbing and harrowing is being proceeded with. Wheat stubbles have longer roots than either barley or oats; consequently more earth will generally adhere to wheat than to barley or oat stubbles. Owing, however, to the greater stiffness of the roots and stems of the wheat stubbles, they prove the most serviceable for the bedding of cattle-sheds and courts.

When the stubbles collected in heaps in the fields have become comparatively dry, the heaps should be carted to the farm buildings during dry weather, as it is most desirable to clear the field of the heaps when the state of the surface of the ground admits of the carts being fully loaded, without much compression of the surface of the land. Those cattle-sheds and courts which have been cleared of dung should be bedded with the stubbles to the depth of one foot or more. After they are levelled, a thin layer of straw can be spread in the sheds over the layer of stubbles. This will render the sheds more comfortable for the cattle, besides, their feet will not cause a displacement in parts of the layer of stubbles. What is not required for littering the sheds should be stored for after use. If an empty shed can be made available for this purpose the stubbles will become drier, and consequently will prove more suitable for litter during the winter. In the absence of a shed, the stubbles as they are brought to the steading can be formed into a large heap, or two or more heaps, the sides of which can be partially smoothed to prevent the rain from penetrating.

By the use of the stubbles for littering, breeding, and feeding stock, the quantity of dung will be largely increased, the health of the stock kept will be generally good, as the earth which adheres to the stubbles will absorb the gases escaping from the decomposing dung and urine voided by the animals. The two important conditions—a large quantity of farmyard dung, available for application in spring, and the



general improved health of the animals kept, will amply repay the expenses incurred in the uprooting, drying, and carting of stables from the fields to the farm buildings. The success of the several operations connected with drying them will depend in some measure upon the state of the weather during the present and succeeding months; but as fine drying weather is of frequent occurrence during the greater part of September and October, there will generally be little difficulty experienced beyond the extra labour which the preparing and carting of the stables for litter entail.

We will mention one case as an example of what can be effected by the careful economising of straw by the substitution of stables in part for litter. The farm we refer to came

frequently under our observation. The soil is generally thin resting upon the trap rock, which appeared at the surface in almost every field of the farm; consequently droughts rendered the corn crops short in the straw. This led to the drying of the stables, these being grubbed up after harvest and dried. The stables enabled the occupier to fatten annually under cover—one ox for each two acres of the farm. This was successfully practised for the greater part of a lease of nineteen years, during which time the hiring value of the farm was materially raised, owing chiefly to the large quantities of farmyard dung annually prepared and applied. Previous to this tenant's occupancy no cattle were fattened on the farm.—*North British Agriculturist.*

## PUTRID MEAT.

Putrid meat is, perhaps, wasteful, rather than actually injurious; but there are plenty of cases in which it has caused disease. Foderé tells us that at the siege of Mantua, those who were shut up in the city, and were obliged to eat the half-putrid flesh of horses, suffered from gangrene and scurvy; and in Cxant's history of Greenland there is an account of the death of thirty-two persons at a missionary station called Kangek, from a repast on the putrid brains of a walrus. Similar cases are recorded in all the books on legal medicine. Even game, when only sufficiently tainted to please the palate of the epicure, has caused severe cholera in persons unaccustomed to it; but as Dr. Christison observes, "the power of habit in reconciling the stomach to the digestion of decayed meat is inconceivable. Some epicures in civilized countries prefer a slight taint even in their beef and mutton; and there are tribes of savages still further advanced in the cultivation of this department of gastronomy, who eat with impunity rancid oil, putrid blubber, and stinking offal." The Zulus of Natal, according to Dr. Colenso, are so fond of putrid meat that they call it *ibomi*, which literally means to be superlatively happy. But, as a rule, there is a natural abhorrence of tainted food, inasmuch that with most persons the mere commencement of decay is sufficient to excite disgust; and rarely do we find, except among savages, that an entire meal is made of putrid flesh. A little game or venison, or ripe cheese at the end of a feast, with just a piquant touch of decay, is, perhaps, not objectionable; for it may, as Liebig supposes, promote digestion by communicating its own quality of transformation to the rest of the food; but it is another thing to fill the stomach with putrid flesh, for if the corrective power of the gastric juice should fail, the effect of it might be serious. We have, indeed, abundant evidence of the terrible consequences of admitting putrid matter into the circulation, for they were once too common among those engaged in the dissection of the human body. In fact, the mere handling of decomposing animal matter for any time, will often produce disease of the hands or other parts of the body with which it comes into contact. Our safety, perhaps, in using such food is the antiseptic power of good cooking; but this is not always an easy affair; for the tissues are generally so soft from decay that they will hardly bear the common action of heat; so that if they be boiled for any length of time they will fall to pieces; and if they be roasted they will shrink without forming that delicious crust of osmazone which is characteristic of good meat. Let them, however, be cooked as they may, they always require a nice adjustment of strong flavours to make them palatable; and those who have dined in the cheap restaurants of Paris, or at the still worse table d'hôte of a German watering-place, will have experienced the art of the cook in this respect, in such dishes as *turbot en vol-au-vent*, *Rais au beurre noir*, *sole en matelote Normande*, and in the various forms of fish *au gratin*; or game *en saumie*.

But bad as this sort of tainted food is, it is nothing in comparison to the sausage poison, which is produced by a sort of modified putrefaction, to which the large sausages of Germany, and especially those of Wurtemberg, are occasionally subject. According to an official return, there have been more than 400 cases of poisoning from these sausages in Wurtemberg alone during the last fifty years, and of these about 150

were fatal. The effects are generally observed in spring, and mostly in April, when the sausages become musty, and acquire a soft consistence in the interior. They have also a peculiarly nauseous and rather putrid taste, and are very acid to test-paper. If eaten in this condition they produce dangerous effects in from twelve to twenty-four hours—the first symptoms being pain in the stomach, with vomiting and diarrhoea, and dryness of the nose and mouth; then comes a feeling of profound depression, with coldness of the limbs, weakness, and irregularity of the pulse, and frequent fainting. Fatal cases end with convulsions and oppressed breathing between the third and eighth day. The precise cause of these effects is still a mystery; some have thought that rancid fatty acids are produced during the decomposition of the meat; others that in the process of drying and smoking acrid pyrogenous acids have been developed; others that during the decay of the sausages, a poisonous organic alkaloid is generated. Liebig is of opinion that the effects are due to an animal ferment, which produces in the blood, by catalysis, a state of putridity analogous to its own, and that the molecular movements of the putrefactive change in the decaying meat are thus communicated to the living organism. M. Vanden Corput, who is one of the most recent investigators of the subject, attributes the morbid action of such meat to the presence of a minute fungus, of the nature of a sarcina, which he calls *sarcina botulina*. This view is confirmed by the fact that there is always a peculiar mouldiness of the sausages; and the poisonous property is generally observed in April, when these cryptogamic organisms are most freely developed.

Similar effects have occasionally been produced by other kinds of animal food—as veal, bacon, ham, salt-beef, salt-fish, cheese, &c., and the food has usually been in a decayed and mouldy condition. It would be tedious if I were to detail, or even to enumerate the cases recorded by medico-legal writers; but I may, perhaps, refer to a few of them. In 1839 there was a popular *fête* at Zurich, and about 600 persons partook of a repast of cold roast veal and ham. In a few hours most of them were suffering from pain in the stomach, with vomiting and diarrhoea; and before a week had elapsed nearly all of them were seriously ill in bed. They complained of shivering, giddiness, headache, and burning fever. In a few cases there was delirium; and when they terminated fatally there was extreme prostration of the vital powers. Careful inquiry was instituted into the matter, and the only discoverable cause of the mischief was incipient putrefaction and slight mouldiness of the meat. Dr. Geiseler relates an instance where a family of eight persons were made ill by musty bacon; and M. Olivier has given an account of six persons who were poisoned by mutton in a state of modified decay, four of whom died from it within eight days. In Russia, where it is the practice to eat largely of salt fish in a raw condition, it is not at all uncommon to witness the dangerous effects of it when it has become mouldy, or putrid; and, in fact, it is within the experience of every one who is concerned in medico-legal inquiries, that serious symptoms are frequently traced to the use of food in a modified condition of decay. This is especially so with bad cheese, the effects of which on the constitution have been so severe that official investigations have been called for. These effects have been noticed at Schwe-

rin (1823), at Minden (1825), at Hameln (1826), at Griefswald (1827), Frankfort (1828), and elsewhere; and they have been the subjects of interesting essays by Henneman, Hünefeld, Westrumb, and others. At first the effects were attributed to the copper vessels used in the dairies, and therefore the Austrian, Wurtemberg, and Ratisberg States prohibited the use of that metal for such purposes; but the subsequent inquiries of Hünefeld, Sertürner, and other chemists established the fact that no metallic poison was discoverable in the cheese. In the police report which was published in Frankfort, in January, 1828, informing the public of numerous cases of poisoning in that city from spoiled cheese, it was declared that no poisonous principle could be detected by chemical re-agents. Professor Hünefeld, and subsequently Sertürner, were of opinion that the effects were due to certain poisonous fatty acids, analogous to, if not identical with, casseic and sebacic acids; and they even describe the way in which they are produced in the cheese during the process of ripening, attributing them to the imperfect removal of the acid liquor from the curd when the

cheese was made, or to the putrefaction of the curd before it was salted, or to the mixture of flour with the curd; but it is far more likely that the poisonous effects are due, as Vanden Corput supposes, to the presence of a peculiar mould or fungus. I have myself seen the most terrible consequences from the use of such cheese, and have failed to discover anything unusual in the acidity or other chemical reactions of the cheese. Hünefeld says it is commonly of a yellowish-red colour, and is soft and tough, with harder and darker lumps interspersed throughout it; and it has a disagreeable taste, and an acid reaction. The symptoms which it produces are very much like those of sausage-poisoning—namely, irritation of the stomach and bowels, with great prostration of the vital powers. These effects have been witnessed not only in Germany, where the cheese is generally rancid and bad, but also in this country, and particularly among the small hill-farms of Cheshire, where the limited extent of the dairies obliges the farmer to curd for several days before a sufficient quantity of it is accumulated to make a large cheese.—*Lecture by Dr. Letheby.*

## STATISTICS OF LIVE STOCK AND DEAD MEAT FOR LONDON.

By ROBERT HERBERT.

(FROM THE NEW NUMBER OF THE "ROYAL AGRICULTURAL SOCIETY'S JOURNAL.")

Although there was a decided falling off in the imports of foreign stock during the first six months of the present year, when compared with the corresponding periods in 1866 and 1867, the general condition of the beasts and sheep at hand was good; consequently the deficiency in the supply of imported food was comparatively trifling. During the greater portion of the season some remarkably fine stock was received in the metropolis from Norfolk and Suffolk; but towards its close the weight and condition of both beasts and sheep, arising from the severe drought in all parts of England and the great scarcity of pasture-food, fell off considerably. The season, therefore, closed badly. The graziers in Lincolnshire, Leicestershire, and Northamptonshire have, however, suffered severely. The drought wholly prevented them from finishing off their beasts, and many of them, owing to the scarcity of food, were compelled in July to sell large numbers of beasts in very little more than a half-fat state. The almost total failure of the turnip-crop, and the moderate yield of the new barley and oats, have led to the inference that meat, especially that of fine quality, will be very high in price during the last three months of the present year.\* The enormous growth of swedes in 1867 has been a great boon to cattle-feeders; indeed, the cowkeepers of London—who were well supplied with swedes till the end of July—would have found it a matter of great difficulty to keep their cows alive had it not been for the splendid crop of roots grown in this country last year. Although the restrictions compelling all cattle exhibited in the Metropolitan Market to be slaughtered within the four-mile radius from Charing-cross continue in force, the trade throughout has been steady, and the fluctuations in prices have been unimportant. Prime Scots and crosses were 2d. per 8lbs. dearer at the close than at the commencement of the first half of the present year. The general top quotation has been 5s. per 8lbs. The arrivals of dead meat from Continental ports have been on a very limited scale; indeed, this branch of the trade, which formerly occupied a rather important position, appears to have sunk into comparative insignificance, so trifling have the receipts lately been. Although the imports have been diminished by more than one-half, the supply of sheep exhibited has been fully equal to the number last year; but the quality of nearly all breeds, arising from the scarcity of food, has shown a considerable deficiency. Prime breeds have, therefore, been in improved request at advanced rates; but inferior sheep have moved off slowly. The large quantities of

meat brought forward in Newgate and Leadenhall have prevented a serious rise in the quotations. The best Downs and half-breeds, in the wool, have sold at from 5s. 2d. to 5s. 4d.; out of the wool, 4s. 6d. to 4s. 8d. per 8lbs. A large number of English lambs have been on offer, but only moderate receipts of foreign. The trade has been fairly active. At the opening of the season prices ranged from 8s. to 9s., but they soon receded to 5s. 6d. to 7s. per 8lbs. The supply of calves has been somewhat limited; nevertheless sales have progressed slowly at from 4s. to 5s. 4d. per 8lbs. For prime small pigs there has been a healthy inquiry at full currencies; otherwise the market has ruled heavy, and the quotations have been drooping. The highest price has been 4s. 4d. per 8lbs. The hay crop has been very small throughout the country, but its quality has been good. The root-crops having proved a complete failure, a strong demand has sprung up for artificial food, and a good business has been transacted in linseed, rapeseed, and oilcakes, at advancing prices. The probable scarcity of fat stock during the winter has also caused more firmness to prevail in the tallow-market. The price of rough fat has advanced to 2. 2½d. per 8lbs. Prime stock has, this year, been very firm in price; but that a decline has taken place in the value of inferior animals, caused by the very middling condition in which they were exhibited. The total imports of foreign stock into London have amounted to 112,790 head, against 248,213 in 1867, being a decline of 135,423 head.

The supplies of meat at Newgate and Leadenhall, although almost entirely composed of the carcasses of home-fed beasts, have been extensive. Generally speaking the trade has been quiet, and prices have been easy. Beef has sold at from 2. 10d. to 4s. 8d.; mutton, 2s. 10d. to 4s. 10d.; lamb, 4s. to 6s. 8d.; veal, 8s. 4d. to 4s. 8d.; and pork, 2s. 10d. to 4s. 6d. per 8lbs. by the carcase.

The high prices at which both beasts and sheep are selling throughout the continent, but more especially in France and Holland, the failure of our root-crops, and the scarcity of hay, lead to the conclusion that really prime meat will maintain its present price for several months. Inferior stock, from the large consumption going on, is likely to command strong quotations during the remainder of the year.

**THE WOOL TRADE.**—In the early part of the year, notwithstanding the high duties levied upon woollen goods in the United States, there was no improved feeling in the wool trade generally. Prices of colonial wool, arising from the large quantities taken by continental houses, were on the advance. Since then, however, as the imports have been on a very large scale, the quotations have given way 1d. to 3d. per lb.; the

\* Fortunately, the country has been visited by some splendid rains, the growth of grass has been somewhat rapid, the potato-crop has shown signs of improvement, and there is every prospect of a full average growth of white turnips.—Aug. 18th.

quantity of colonial wool advertised for the July sales amounting to 226,000 bales—a quantity greatly in excess of all previous years. The new clip of English wool has turned out very large and of unusually fine quality. Yet prices, in comparison with colonial, have not suffered materially, although

the want of orders for woollen goods for export has been much complained of. The severe pressure of colonial wools upon the market, and the moderate shipments of woollen goods now being made to the United States, render it uncertain whether prices will recover themselves this year.

## THE METROPOLITAN FOREIGN CATTLE MARKET.

At the Court of Common Council,

Mr. T. RUDKIN, chairman of the Markets' Committee, brought up a report detailing the proceedings in Parliament in relation to the above bill, which was withdrawn at the close of the last session, and recommending that the committee be authorised to inquire into the whole subject, and to consider and report to the court the best course that ought to be pursued in order to meet the requirements of the cattle and meat trades, and to prevent, as far as may be practicable, the re-introduction of the cattle plague; and, while protecting the fair and proper interests of the corporation, to promote the advantage of the public; and that the committee be authorised to confer on the subject with her Majesty's Government, and such other parties as the committee might consider advisable. Mr. Rudkin, in moving the adoption of the report, said that unless the corporation fought the battle themselves they would have again to go over the same ground they went over last session. The agriculturists, it was stated, did not want cattle imported that might introduce the cattle plague, but, at the same time, they had to consider the price of meat to the inhabitants of London. Had the Government of the day adopted the suggestion of the Markets' Committee, he believed the rinderpest would not have spread as it did. They went to Lord Granville, and said it was necessary to establish a cordon of constables round the metropolis to prevent any cattle going out of London, and this would have confined the plague to London. That was a step the Government did not adopt; but if they had had then the experience they have now they would have adopted it. Ostensibly the object of the agriculturists in wishing for a new foreign cattle market was to prevent the plague extending to the country, but their real object was conclusively shown to be to create a monopoly for the consumption of English beef only. The ordinary profit of a bullock coming from abroad did not exceed 10s., and if they diminished the value of that animal by 30s. or 40s., which, he contended, would be the consequence of the Government proposal, it would be tantamount to prohibiting altogether the importation of foreign cattle. First of all there would be an increased expense to the butcher in having a slaughter-house at the New Market. The man who slaughtered his own animals now on his own premises would not be able to go to the Cattle Market to slaughter his animals; a separate gang of men would have to be kept for that purpose. Then there was the depreciation in the value of the offal, owing to its not being sold on the same night that the animals were slaughtered, and also the loss that occurred in all public slaughter-houses from the want of personal control. The expense of an animal now in travelling alive from the market to the butcher's-shop was something like sixpence, whereas if it had to be carted when slaughtered it would cost at least 5s. All these things tended to increase the expenses of the butcher to about 30s. per head on foreign cattle. That would not arise in the case of English cattle, because, under the scheme proposed by the Government, they would be permitted to travel anywhere about London as they do now, and therefore, as he had already said, it was practically giving English agriculturists a monopoly of the trade. The notion that London can be supplied solely with dead meat, Mr. Rudkin proceeded to say, was utterly fallacious. In that case it would be impossible for many families to get a joint of meat during the summer months. It was, therefore, absolutely necessary that slaughter-houses should exist to a very large extent in the metropolis. The question was, under what arrangements should these slaughter-houses be provided? The opinion of the committee was that a series of abattoirs should be estab-

lished throughout the metropolis, with direct communication with the Metropolitan Cattle Market by railway. That scheme would do away entirely with the driving of cattle through the streets; it would bring the slaughter-houses within a mile or three-quarters of a mile of the butchers; and the slaughter-houses could be so fitted up as to accommodate horses and carts, and be under the butchers' own individual control. More than that, they could have accommodation for milk cows and fancy stock. The erection of another cattle market would involve an enormous outlay, and at the same time prohibit the importation of foreign animals and increase the price of meat to the extent of at least one penny per pound, and that for the benefit of the English agriculturists. He hoped the committee would agree to the report, and refer it back to the committee for consideration.

Mr. WOODLEY thought that this scheme ought to have been printed before being brought before them.

Mr. RUDKIN said he did not propose a scheme; he only stated what the views of some of the committee were on the subject.

Mr. WOODLEY said that power was asked to confer with the Government, and he hoped the court would pause before giving the committee authority to go to the Government and foreshadow measures which would be very sweeping and very objectionable to the trade. Let them not play fast and loose with the Government. If they had been more decided last year they would have been saved a great deal of trouble. He did not think that anything should be done until the court had approved of a scheme and were prepared to carry it out. Mr. Woodley concluded by moving that the report be printed and circulated, and the consideration of it adjourned.

Mr. E. N. PHILLIPS seconded the amendment.

Mr. Deputy DE JESSET thought the chairman of the committee was quite right in proposing to take the initiative. They ought to be prepared to meet any bill brought forward by the present or any future Government, and know what they were going to do. Even although they were to build abattoirs the expense would be nothing compared with that of building a new cattle market, and he would support any inquiry that would get them out of the difficulty, and prevent the re-introduction of such a bill as that of last session.

The amendment was then put to the meeting, and lost on a show of hands.

While a division was being taken on the subject notice was taken that only one alderman was present, and as the standing orders of the court require the presence of at least two aldermen in order to constitute a court the proceedings came abruptly to a close.

## HARDENING THE MOULD-BOARD OF PLOUGHS.

—A new method has been discovered for the manufacture of the mould-board of ploughs, which gives them all the hardness and temper of steel, in combination with the toughness or iron. The mould-board (good iron) is heated and dipped into molten iron. It remains there ten seconds, when the two surfaces become heated to a white heat, while the centre is not heated through. It is then immediately dipped into water; the surface comes out harder than the highest tempered steel, while the interior is still iron, and retains all the toughness and strength of the iron. The advantage claimed for this invention is that the ploughs made by the process will take the finest and hardest polish, while they will be tough enough to endure any reasonable knocking about in stony soils. — *New York Weekly Herald*.

## ECHOES FROM THE AGRICULTURAL MEETINGS.

## FROM BERKSHIRE.

At ABINGDON, Mr. BENYON, M.P., said he had as great a pride in endeavouring to get the best price for his produce and stock as the farmers had. He thought that they had good reason to be satisfied with the result of this year's harvest. He knew that in Essex 10 or 11 acres had been thrashed out for straw, and the yield had been 6 quarters and  $\frac{3}{4}$  quarters per acre; and coming nearer home, in the adjoining county of Oxford, the yield had been 12 quarters. He hoped the Berkshire farmers would be able to tell the same tale. No doubt they had had a very exceptional year, and had passed through a season of extraordinary drought and excessive heat, and surely this ought to suggest to their minds the advisability of deep cultivation—he meant increasing the depth of soil, increasing the thickness of the sponge, which not only acted as manure but as a moisture to feed the growing crops. The question was—How could they effect this most efficiently and most economically? Now, he apprehended that steam-power was unrivalled as an agent to break up the soil, and by this means 8, 12, and 14-horse power was brought to bear on a field which horses could not touch, on account of the ground being so dry. A large number of farmers in Oxfordshire had their own steam-ploughs, and had availed themselves of the last new invention of a double steam-engine, at an expense of £1,200 or £1,500. This brought them to consider the question of economy. £1,400 was a large sum for a farmer to spend for such a purpose, but if the result was a paying result, immediate capital could surely be found in the same way as for thrashing-machines. He had heard that ploughing by the new steam-engines could be done at 7s. 6d. per acre, the owner of the land finding coals and water, which would cost about 1s. 6d. or 2s. more. It was, therefore, laid down as a broad fact that land could be ploughed at a cost not exceeding 10s. per acre. If that was so, he thought it was well worth the expense, and he thought it was a hard thing to say that that outlay was sufficient to condemn the system. He was sure that if other counties could embark in such an undertaking, and that if the Berkshire farmers could only satisfy themselves that it would be a paying operation, their pluck and courage would never allow them to be beaten by other farmers, and it would be for their interest as well as for the good of the country.

Mr. WALTER said he for one had long looked to the introduction of machinery as beyond all others the most powerful agent in promoting the education and welfare of the labouring class. They would find wherever machinery was introduced wages rose and the material welfare of the labouring class improved. A most remarkable instance of this was given in the results of the Commission to the French Exhibition. They all knew the state of the needle-women in London was one of proverbial misery and horror. If they wished to draw a picture of irremediable distress, they pointed to those wretched creatures who were cooped up in garrets making shirts and dresses. But the remarkable fact was that since the introduction of sewing-machines the wages of those women had increased 30 per cent. And so it was in agriculture; wherever steam-ploughing had been introduced wages had risen. On his own farm he had not only a single engine, but within the last week he had started a double-engine plough; so that he believed he had cut out Mr. Benyon on his own ground. He had only seen it at work yesterday morning for the first time, and he was delighted to find that, instead of being looked on with horror by the farmers, they were all crying out for the loan of it. He believed, though costly at first, it would be found exceedingly advantageous. When they had got it they would find they must have more intelligent farmers, more intelligent lads and labourers; and thus the problem which had so long puzzled political economists would soon be solved—how to raise the wages and improve the condition of the agricultural labourer.

At HIGHCLERE, Mr. W. W. B. BEACH, M.P., said societies like this were calculated to carry out healthy and beneficial objects. In the first place, they conducted to the progress

and success of agriculture; and secondly, they materially benefited the agricultural labourer himself. They brought the agriculturists together from various localities, and placed before their eyes the improvements which were made in different quarters, thus enabling them to judge how far it was open for them to improve their own mode of cultivation. In the present day it was of the utmost importance that the application of machinery to agriculture should be thoroughly understood. Some years ago the idea of ploughing by means of a steam-plough would have astonished and surprised the farmer; but now the agriculturists were alive to the value of machinery, and had an anxious desire to see how far it could be made applicable to their own mode of cultivation. But if societies like that did nothing to promote the general improvement of agriculture they did much towards improving the status and position of the agricultural labourer. They gave him an inducement to cultivate his own little piece of land in the best mode, and by showing him what others were doing in the parishes around him they enabled him to judge whether it was not possible for him to improve his cultivation in another year. Personally he regarded it as of the highest importance to agriculture in the present day that they should do all in their power to make the agricultural labourer prosperous and happy. At this moment great inducements were being held out to the agricultural labourer to enter the army, but the farmer, in their own interests, should try how they could induce him to stop at home. This could only be done by attending to their wants and wishes and making them happy and comfortable, for there were many inducements to take them away to more crowded districts in search of their future livelihood. In the present day there was a strong feeling in favour of education. They might depend upon it that education judiciously applied would place at their disposal more capable and willing men than if they were obliged to engage labourers who had not had the benefits of education and knowledge instilled into their minds in youth.

## FROM WORCESTERSHIRE.

At Worcester, Mr. H. ALLSOP said it was a practice on occasions of that kind to advert to many subjects which interested both landlords and tenants, but he did not think this was the place for suggesting to landlords what were their duties to their servants, and to tenants what were their duties to the landlords. He believed the landlords and tenants of the county generally endeavoured to do their duty, but of course there were exceptions. There might be bad landlords, and the worst thing he wished them was that they might have bad tenants. Bad tenants were also deserving of bad landlords, and he hoped both might go together and continue together. There were certain subjects which without infringing the rule he had laid down he might allude to. They knew in how many respects a landlord might afford facilities to his tenants for improving agriculture, and thereby benefiting landlord, tenants, and the community at large. It was for the landlord to induce his tenant to invest as much as he could in the better cultivation of the soil. If a tenant wanted to cultivate the land 12 inches deep instead of six the landlord ought, wherever he could, to afford him facility for doing so. They knew from practical experience that the deeper the clay lands of this county were cultivated the greater would be the return. Until they broke up the land they did not know what were its powers of production, what treasures lay hidden in it. He did not wish to magnify his own doings in this respect, but he thought he might say he had cultivated his land to a greater depth than many of his neighbours. He believed that by deep cultivation they might raise anything they liked; they might grow any amount of mangold wurtzel and turnips. Deep cultivation would tend to increase the stock, to improve their grass lands, and, what had been regarded as impossible, after the growth of mangolds or swedes to produce as good barley as could be grown. There must be one system, autumn cultivation, deep cultivation, and early planting. He believed in this county they might grow as fine wheat and beans as in any

part, and, in his opinion, the county was admirably adapted for the cultivation of hops. He was sorry to say he could not compliment Worcestershire or Herefordshire growers on their management. There was a greater quantity of hops grown than the growers had the means of drying. There must be additional kiln-room, and more attention paid to different sorts. They had to compete with the world, and they must produce hops in large quantity and good quality, or they would be left behind in the race. Another article for which the county was celebrated was fruit, and there was no reason why they should grow bad fruit when they could grow good. If they produced cider they must have it good; many farms were studded with trees of no value, and which interfered with the cultivation of the soil.

#### FROM HERTFORDSHIRE.

AT HERTFORD: The Hon. H. COOPER, M.P., said at the last anniversary, he was some 2,000 miles west of New York, and could not help smiling at the contrast between the state of things here and in that country. It had been said that it would be possible to assimilate American and English institutions to each other. He was not prepared off-hand to express an opinion as to how far he agreed or disagreed with that sentiment. But he must say that he could not imagine two agricultural institutions more unlike. Here the great pressure of the population was such as in many places to depreciate the wages of the agricultural peasantry. There were many places in which they could find no work at all, and in the dead time of the year the ingenuity of charitable people was taxed to the utmost to create work for the labourers. Now, in America the reverse was the case. A man going out to work sometimes did not find another within five or six miles of him. By paying six dollars to the Government he could have 150 acres of land assigned him. It seemed strange to us in this crowded country, but there he could settle down and cultivate an acre or two, until he could get machinery and go on cultivating to a larger extent, and in the course of a few years he was able to bring the whole of his 150 acres into cultivation with no capital at all. Another striking thing was the enormous number of agricultural machines used in that country. There were implements of every kind, and a man might be seen sitting in the centre of his machinery, like a spider in his web, watching the movements of everything around him, and turning them to his profit and advantage in the best possible manner. One man had a great number of cows, and he invented a machine for milking them. One day he fixed the machines upon the cows; but from some cause or other the cows got away, and were wandering about in the woods several days with the milking machines fixed on them all the while. That was not a very successful experiment; but there were American machines which we might adopt with great advantage to ourselves.

Mr. DINDSALL, M.P., said: Some reference had been made to the Metropolitan Cattle Markets Bill, and he alluded to it now, to bring out a strong illustration of the great changes in the past year. In the divisions that took place on the Bill, their honourable chairman and other members for the county threw aside political differences and went side by side into the same lobby. He did not think that could have taken place 10 or 15 years ago. There was another question of great interest to agriculturists—the repeal of the malt-tax; for that he was an advocate; but he never supported it as for the interest of the producer only, he believed it was equally for the interest of the consumer as the producer that the malt-tax should be repealed. They could not expect it to take place at the present time; but he was sure that if the farmers and agriculturists were strongly united when the period arrived for the revision of our financial system, the agricultural interest would not be neglected: for the members of an agricultural town and of an agricultural county they might be assured would be united in pressing the demands of the agriculturists on the Government. Another question had been alluded to, which he thought would come into great prominence the next few years—the question of rating; and he did not think that unjust system would then be allowed to continue in force, by which the largest burdens were thrown on the land, whilst a great proportion of other kinds of property was allowed to escape. The great injustice of the present system had been pointed out; and he felt sure that it was a question on which the agricultural interest would be defended, and that they all, the mem-

bers both for the town and county, would be prepared to take their part and see justice done to all.

Mr. C. LATTIMORE said: Gentlemen, landlords did not hear the feeling of men out of doors; it was his fate to go amongst those men. He believed he never had and never would deceive any class of men. And he did not deceive them when he told them that a main question with tenant-farmers was the ground game. There was a great deal of discontent amongst the tenant-farmers in that respect. He knew many farmers who had suffered very much from ground game in a dry season like this. Mr. Smith had alluded to the elements. They could not interfere with the order of Nature; they could not control the rising of the Pleiades or the setting of Orion; but the landlords had it in their power to a great extent to control the destruction by the ground game. He knew of an instance where a nobleman of that county hearing that the game had done injury to his tenantry, with the true nobility of his character set to work and had the rabbits all destroyed. That nobleman was Earl Cowper, a young man, fond of sport; and he, therefore, honoured him the more for doing what he felt to be his duty to his country.

At TRING: Mr. ABEL SMITH said there was only one bill last session which particularly affected the agricultural interest; that was the bill for slaughtering foreign animals at the port of debarkation. The three county members for Herts all cordially joined in supporting the bill, and remained in town for that purpose so long as there was a chance of carrying it. The necessity of such a bill was apparent; for when the cattle-plague visited this country three years ago, it was brought in by cattle from abroad. They had some excellent animals in the show-yard, several that would successfully vie with those exhibited at the meeting of the county society at Hertford the previous week, where they had a very excellent show. The tenant-farmers at Hertford thought they could not compete with their landlords, and the society had to offer prizes for tenant-farmers only; but one of his (Mr. Smith's) beat him hollow in sheep. Amongst other questions that affected the agricultural interest there was the important one of sewage. It was important for the sake of people's health that they should have pure water—that was indeed a necessity. A good system of sewage would produce great results. It would help the agriculturists by increasing the produce of the soil. We pay high sums for guano; but he hoped before long the sewage of our towns and villages would be successfully applied to the land. The experiments at Barking were very interesting. The sewage had been tried on wheat, oats, and rye, and had been of special use during the present dry summer. After the corn was off the land the sewage was put on, and it had an increased produce by £10 per acre. It was important that they should endeavour to do all they could to increase the produce of the soil. They could not grow too much in England; for there is an increase of population of 240,000 a-year, and an enormous amount of extra food is required to be produced, to feed the ever-increasing quantity of people. How was that to be obtained? They could not extend the acreage of England, but they could extend its producing power by drainage. It was calculated that there were five million acres of land in England that required drainage. This could be done for £6 per acre, so that it would require 30 million pounds to do it. But the increased annual yield would be from 12 to 20 per cent.; and even if the yield was only 10 per cent. more, that would be money well spent. It would not only employ labour, but while it increased the produce of the soil it would add to the value of the land, and be a source of profit to the capitalists engaged in the work.

Mr. FREEMAN said, with respect to cattle, there was one thing which, in the interest of the consumers, he felt bound to state. Mr. Bright was always recommending us to go and take pattern from the Americans. Now, he would advise Messrs. Bright, Milner Gibson, and Co., who had opposed the Foreign Cattle Markets Bill, to go and take pattern from the Americans. They would not allow the importation of cattle into their country, nor even from an infected State to another part of the country: they prohibited importation altogether. But those who refused to pass this bill were doing their best to perpetuate disease amongst us. The tenant-farmers, who were doing their best to provide meat for the country, ought to be protected from the invasion of foreign disease, and he saw no other plan than that of slaughtering foreign cattle at the port of debarkation; and as regards raising the price of

meat, it was all moonshine. Could not the dead meat be sent to London from all the ports, as it is from the country at present? The foreigners are allowed to send their cargoes of diseased meat into this country, and we are liable to have our flocks and herds destroyed by it; and if they are destroyed, the consumers must of course have to pay more for what they do get, and it could not be expected that the farmers could till their land as they should do, if they lose their stock. He hoped the representatives of the tenant-farmers would do their best to pass a bill preventing the spread of foreign cattle in the country. There was one more question likely to affect the farmers—that was the education of the labourers' children. He understood an Act was to be passed to compel children under ten years of age to go to school, and not to work. But if they merely passed an Act for children not to work under that age, without compelling them to go to school, they would lead a life of idleness, and be a source of mischief and distress to all around them. He did not think much good would be done by interfering with the children further than seeing they were properly educated. There were times of the year when the work of a child under ten years of age is useful, and a help to the means of the parents. And he thought the costs of such education ought to come out of the income-tax, and not out of the poor-rates. With regard to drainage, no doubt there was a great quantity of land that would pay well for draining; and he knew that land could be effectually drained for £3 per acre. ["No, no." He (Mr. Freeman) repeated that it could. A voice: "If the landlord finds tiles." He agreed with that. "Why not say it, then?" Why, it could be done if the tenant found tiles. ["No, no." Yes: he told them it could be done at £3 and find your own tiles; and they would drain more effectually up a furrow at three feet, than at four feet if they went across. They could buy drain-pipes at 10s. per 1,000 [A farmer: "20s. to 22s. per 1,000]; and 1,000 would do an acre.

Mr. TREADWELL said there was little use in offering special prizes for stock, so long as they were liable to be infected with diseased foreign cattle. Mr. Smith had called their attention to the bill, which was not passed, and they might look forward to renewed opposition to it from certain parties in the House of Commons. It was evident to him that the bill had been buried; and he wished to impress upon the mind of Mr. Cowper that he would be tarred with one brush with those who opposed the bill, if he walked into the lobby to vote for the bill, and did not sit in the House to face the opponents of a bill that was supported by a majority of the House of Commons. It was a question of town as well as country. They were not protectionists; they were free-traders. They wanted to be allowed to send their stock to London, and from thence, if necessary, into the country, and not to be obliged to have it sacrificed at the London butchers' mercy. No doubt they had read the speech of Lord Robert Montagu in Huntingdonshire. He told them about the inspectors who had been so much lauded by Milner Gibson and his pretty crew. They had had passed a cargo of sheep as good; but Mr. Waller, who had sat by his side all the evening and had just left, would have told them that cargo had the small-pox, and had he not gone to Romford and had them slaughtered there, they would probably have spread infection all over the country; and he would ask, if a small minority could stop a bill, could not a large majority do the same? He fancied that factious opposition was a game two parties could play at. There were one or two questions he would like to allude to. It had been suggested that they should offer prizes for corn; but he did not think much of that: it was well known that, as a rule, the best farmers do not grow the best quality of corn. As to draining, he never knew that any one could drain at £3 per acre, unless the landlord find tiles. But the great question was, how were they to winter the cattle and sheep? He had not heard one word about it that night, and yet it was a most important subject. He did not profess to be an authority, but he could see they would have to economize all they could. For himself, he should cut up all his hay and straw into chaff, and mix it with oil-cake and cotton-cake, and mix malt-dust with it—make the best of his roots, grind down his rivet wheats, and that would be as cheap as anything; and if the farmer was allowed to convert his barley into malt, that would be a fine thing to mix with the short supply of other food this season. But this he could not do, because the malt-tax was not repealed, or that would be the best thing to keep

them over the winter, and he did not know how it was to be done.

#### FROM CHESHIRE.

At TARPORLEY, Lord BUNNING said: Gentlemen, it is not my intention to enter upon the merits or demerits of the various classes of animals exhibited, because I feel sure the judges are much more competent connoisseurs of such matters, and they will no doubt, if asked, favour us with their opinions. I believe I said that it was a matter of congratulation that we had so good a show to-day; but I think it ought to be something more than a matter of mere congratulation. Remembering that little more than two years have elapsed, remembering that in 1866, within five months, from the 12th of December to the 12th of May, no fewer than 23,400 of the flower of the dairy stock of Cheshire were swept off by that dire calamity, the cattle plague—remembering this, it ought not only to be a matter of congratulation, but a cause of heartfelt thankfulness to see the farmers, Cheshire farmers, again in such a position as to hold such a show as we have seen to-day. That such is the case it reflects, I think the highest credit on the Cheshire farmer, recognising of course in the first place the goodness of Him from whom these cometh the increase. I think also we cannot fail to recognize that energy—that indomitable British pluck, if I may so speak—which has kept the Cheshire farmer's head above water, and prevented him from succumbing to the difficulties with which he was beset. As Mr. Finchett has said, tenant-farmers are sometimes spoken of, and not unfrequently, as a grumbling or a murmuring class. Now, gentlemen, I believe that is a very common complaint of farmers, but I can only say—I don't mean to say it attaches to farmers, but it is said of them—that so far as my experience goes such is not the case. I have witnessed loss after loss, health broken by watching, and the use of appliances to prevent the ravages among stock—I have seen ruin apparently staring him in the face—and all this without a murmur from the Cheshire farmer, and, if you will allow me to say so, borne with a manly resignation and a Christian fortitude. Therefore, gentlemen, I can give you my word that I shall not be one to join in the popular cry that farmers are a grumbling or a murmuring class. I remember reading, if I mistake not in 1863, the first year a show was held at Tarporley, a report of a remarkably good paper by Mr. Rigby, and there were two or three sentences which contained so much truth that I thought it worth while to make note of them. They are these: "There are many agencies and associations at work in the world which proceed so unobtrusively that we are scarcely aware of their existence; but if their action were to cease, their usefulness would soon be manifest. Blot them out of existence, and the blank they would leave would soon disclose their worth." With these remarks I fully agree, and with Mr. Rigby I believe that quietly perhaps, but steadily and surely, our local associations are doing their work—not only in producing a better class of stock, but in general agricultural improvements. The fact is, and Mr. Rigby made some such remark in the same paper, that no farmer can pass through even a local show-yard, even such an exhibition as the one to-day, without having his eye opened, and especially that man whom we wish to encounter, who thinks his ducks are geese and his geese better than anybody else's. Such a man looks at the horses, the bulls, the cows, or the turnips, and goes home. Perhaps he looks at his own swede, but he has the form of the prize swede in his eye, and having made his own private notes at the show, he remembers that what he has seen is far better than anything he can show. His first object is to attain nearer to what he has seen by giving his crop a little extra manure, a little extra hoeing and attention; or, in regard to stock, he will endeavour, if possible, to get the same blood; and in this way shows must be of the highest advantage. These annual meetings too tend to sharpen the wits, to stretch the intellect, and to open men's understandings. It does a man good to talk to a practical man—I am not speaking now of the scientific men, because I have no faith in them; but in a meeting of farmers conversation shows that in one place they have light soil, and in another a stiff clayey soil, and that what will answer in one place will not answer in another. Rotation of crops may do in one place and not in another. Don't misunderstand me when I say I have no faith in scientific men. There is a certain class of men—I don't mean to include myself—who give expression to theories sometimes of a

vague description, who indulge in long words, and talk faintly about hydrogen, nitrogen, and carbon, which they think necessary in the cultivation of the soil, but many of them have never attempted to reduce to a practice a portion or one-half of the theories they bring before the public. Give me a thoroughly practical farmer, who has reduced his own or other men's theories to practice, who has proved by his own experience what is the best and most economic system of farming. I believe there are many in an association like this who may learn something by coming into contact with each other. There is one other way in which I think these shows are of the greatest possible use, and that is in bringing the landlords and tenant-farmers together—as the landlords may learn a good deal from farmers' discussions, and I only wish there were more of them, and hope that they will be continued this year at Tarporley. The farmers may learn a great deal, and landlords, too, may learn something which is not always palatable. But I think the landlords ought to be glad to receive these hints, when they meet with their tenants at these meetings on common ground. The mutual interchange of thought and idea on agricultural topics ought to teach them that their interests are not antagonistic, but pretty nearly identical. That, gentlemen, is I think one advantage of these associations, and I only wish it were more readily received by both landowners and tenant than it is, as I am convinced it would be very much to their benefit. The condition of the agricultural labourer is a question which affects not the man alone, not his family only, not the farmer only, but the world at large. The first method of improving the moral, social, and intellectual condition of the agricultural labourer is, no doubt, by giving him a house fit for a man to live in. I am sorry to say this is not always done. There are not many landlords who look upon cottage property as a most undesirable possession; and so it is, regarding its returns; but then every landlord should remember there are heavy responsibilities attaching to property—that there is something more than a financial return to be expected; there is such a thing as a moral return. To the landlord I say, on you devolves the duty of providing the agricultural labourer with a suitable house. Now, in what way is this productive of benefit? It is productive of benefit in the first place, physically. Sanitary conditions surely must be those which enable a man to go forth with energy and strength to perform his duty for his master, the farmer. But, putting this aside, and looking at it from a higher point of view, how can decency, how can morality be observed by a class whose habitations are such that young men and women are huddled together? Why, gentlemen, I believe there is no country in the world where such a system could take place as exists in some parts of our own. The system is disgraceful; but the disgrace comes upon us landlords. Gentlemen, this great disgrace cannot be remedied in one day. My vice-chairman will bear me out in saying that I am alive to this crying grievance, and that if there is anything in this world I want to do it is to improve the condition of the labourer on the estates with which I am connected, and to give him a house of which I shall not be ashamed. Well, gentlemen, next to the duty of the landlord comes the duty of the tenant; and I believe that tenant-farmers, as a rule, do evince great interest in the social and moral condition of our servants; but still I think there is something more required on this head. I think more might be done by the tenant-farmer—I will not say by example, because we all know what that is—in promoting the education of his servants. This is a great point, and in the promotion of their moral and spiritual education farmers' wives have much in their hands. What is woman's influence? I think the Cheshire farmers' wives might do more than they do in promoting the moral good of their servants. I may be wrong, gentlemen, but it has struck me that there is not such care devoted by farmers' wives to the moral culture of their servants as there might be, because it is a grave responsibility when these young men and young women come into service, uneducated and subject to great temptation; and I think farmers and farmers' wives should be alive to the opportunities of doing what they can to promote the spiritual as well as the moral welfare of their servants. You may say the condition of that class affects every other class of society, in this way: the children of the agricultural labourer go out to learn a trade, or to service, or some time or other, by ties of relationship, or service, or neighbourhood, the agricultural labourer or his family become in some way connected with every class of society

throughout our country, and it is on the moral status of the inhabitants of the country that success and prosperity depend; and therefore, gentlemen, in going to the house of the agricultural labourer, I look upon it that we are going to the root of a very great social and moral evil in our country.

#### FROM SHROPSHIRE.

At LUDLOW: General HERBERT, M. P., said in the next Parliament no doubt several important questions relating to agriculture would be raised. Protection from cattle plague would be regarded as important, and he trusted that the unanimity which was shown in the last session by members on both sides of the House would be continued in the next. He hoped the senseless opposition to the Cattle Market Bill would not be persisted in. He was astonished to see men like Mr. Milner Gibson and Mr. Goschen, ex-Cabinet Ministers, taking so violent a part in that opposition. He believed the members in the Southern Division were unanimous in their opinions upon that question, and would very probably be again if they were returned to the House of Commons. The question of financial boards would no doubt occupy the attention of the house; it would no doubt require great consideration as to the shape in which the bill should be framed. There had been a great deal of evidence placed before the House of Commons on the subject, and it was difficult to say how the subject was to be dealt with. It was very natural that everybody should wish to know how their money was spent, but they very often found that it was better spent by small parties than large numbers.

Mr. JASPER MORE, M. P., said: The Chairman has very wisely defined the extent to which we may touch on politics. I think it a great mistake on these occasions to restrain even the just expression of opinion on the Parliamentary interests of agriculture, because the occasions we have for meeting, compared with the facilities for combined action in towns, are so few that we cannot afford to lose any opportunity of discussing our common interests. Also, I believe that more may be gained for agriculture from public opinion than from legislation, for the latter is always difficult to obtain, but the former takes effect not gradually, but at once. Take the question of the over preservation of game. From the year 1846, when a committee, of which the noble lord present was a member, reported on the game laws, to the present time, there has been no legislation on game-preserving from the farmers' view of the question; and yet within that time the expression of their opinion has put down excessive game-preserving to an extent which it was then taking, one county with another, which has made it cease to be the grievance it was then. And here I wish to remark that one of the ablest friends of agriculture, the Editor of the *Mark Lane Express*, who, I believe, has never been in Shropshire, [he has had that pleasure] though we should be very glad to see him here, has mentioned my name on several occasions as one who ought to originate some motion on the subject of game. Now I wish to state from my knowledge of the county and of other counties that excessive game-preserving is not a special Shropshire grievance. I saw it stated last year that a party had been shooting for a week in Suffolk, and that they had not had particularly good sport, as 1,200 head was their best day. I happened to meet a gentleman who has the most thorough knowledge of Shropshire estates and families, and I asked him on how many estates in Shropshire he thought it possible, under the most favourable circumstances, 1,000 head of game could be killed in one day. He said he was not sure that there were two estates in the county on which this could be made on any one day in the season, but that his opinion was there were not more than two at which it could be done. If, therefore, 1,200 head is no remarkable day for Suffolk, and 1,000 is a rarity in any part of Shropshire, it is clear that to vest the duty of initiating fresh legislation on game on a Shropshire member is calculated to give a wrong impression of the state of game-preserving in the county. On the fate of two agricultural questions in Parliament he would say a few words. He did so with the satisfaction of knowing that on these two subjects all the county members for Shropshire had voted together. The first was the Metropolitan Cattle Market Bill. He supported that bill in all its stages, but there was a member of the Central Chamber of Agriculture present (Mr. Duckham) who might remember that he expressed his opinion before the Central Chamber, when they first considered the bill, that Lord R.



Montagu's bill could not possibly pass. He found many farmers did not understand the point which was really fatal to the bill. The opposition was successful, and the bill was withdrawn, simply because there were no funds to make the market. The faulty principle of the bill was exactly analogous to his proposing that, for the good of his constituents, a market should be built at Ludlow for the slaughter of all cattle imported from the southern counties, and that the expense of making it should be paid out of the Shropshire county rate, or, if the quarter sessions declined, then the expense should be paid by the Corporation of Ludlow. Would not any friend in such a case have advised him to be sure before he proposed such a measure that one of these bodies would pay the expenses? But this is just what the Government did not do when they gave the Metropolitan Board of Works and the Corporation of London the option of paying for the market. If the market was of national importance he never could see much use in proceeding with the measure after Mr. Hunt had said the Government would give no guarantee for the expenses, and he fully believed that the reluctance of Mr. Disraeli to proceed with the measure was solely explicable by his knowledge when he came to consider Lord R. Montagu's bill, that to proceed with it must cause failure and disappointment. He wished to state his experience of the last moments of that bill. Mr. Waller, secretary of the Home Cattle Defence Association—a gentleman most assiduous in his attention to this bill—came to him and asked him if nothing could be done to save the bill. He told him one thing only, viz., to produce £500,000 for the market. Mr. Waller authorised him to state in the House of Commons that he would produce the money. He advised him to write and inform Mr. Hunt that he would do so. He accordingly did, in a letter which, unfortunately, contained no detailed statement of his securities for the money, and though this statement had evidently some effect on Mr. Hunt, it had not sufficient to prevent the bill being withdrawn, as he found the next morning. If Mr. Waller supplied the money now he would no doubt assist the introduction of another bill next session, when the thermometer should not again be, as General Herbert had reminded them it was last session, at 90 deg.; he trusted the majority in favour of the bill would be again what it was then, 120. The only other question to which he would briefly allude was the policy of licences for brewing, as a substitute for the malt tax. It was a difficult question, but one that required the utmost consideration, and he hoped Chambers of Agriculture would go into the question with brewers, public and private, and that before they did so the evidence of the five last witnesses before the malt tax committee would be well studied and considered. Nothing had given him greater satisfaction in being their member than the part he had been able to take in promoting these Chambers. There were sixty-seven of them now formed, with 15,000 members. How they could influence public opinion was beginning to be seen by the unanimity with which the representative principle for ratepayers was assented to in the House of Commons, compared with the strenuous opposition for three years to the application of this principle to county business when last proposed.

Mr. DUCKHAM said, a very few days ago a report was made before the Court of Common Council, by Mr. Rudkin the chairman of the Market Committee on the Metropolitan Cattle Market Bill, and introducing that report, he said, "Ostensibly the object of the agriculturists in wishing for a new foreign cattle market was to prevent the plague extending to the country, but their real object was conclusively shown to be to create a monopoly for the consumption of English beef only." If the farmers of England were canvassed whether they would return to protection or whether free-trade should continue, the majority would be vastly in favour of free-trade. He believed that nine-tenths of the farmers of England would say "let well alone"—that "since free-trade had been the law the trade and commerce of the nation had flourished in such a manner that they would be sorry to see it interfered with. His conviction was that, under God's blessing, and with a fair field and no favour, the English farmer could compete with all the world. That, he believed, was something like the opinion of the majority of farmers—at least it was the opinion of the majority of those he knew. A more fallacious statement was never uttered by any man. Therefore such an assertion as Mr. Rudkin's had cast an unwarrantable imputation on the Farmers of England.

## FROM NORFOLK.

At NORTH WALSHAM: Mr. C. S. READ said they had on the present occasion several important questions before them, but party politics were properly excluded. He should not break that salutary law, but, happily for them, farmers' agricultural politics were common to both parties. He could not resist congratulating his brother farmers on the difference there was now as far as agricultural politics were concerned, when he contrasted what was the state some three years ago. He very well remembered how they ran about the county tearing their hair in despair, because they could not find what they considered an agricultural candidate, and how, at the last moment, in their desperation and despair, they fell back upon him; but now no one solicited the honour of representing them in the next parliament but he told them boldly and frankly what were his views on all the important questions which affected agriculture. Unsolicited, came forth expressions of opinion not only on the malt-tax, not only on the vexed question of rating and the representation of ratepayers at Quarter Sessions, but also on that still more important and pressing question of the separation of the home and the foreign stock. If they had become better citizens it was the duty of every one to encourage the independence of the farmer, and he was confident that in this county at least the idea of undue territorial influence would not exist, and would not be exerted in any contest they were about to have, whether in the North, South, or West; that the aristocracy would not only give formal permission to their tenants to vote, but would give them that spontaneous and hearty expression which would tell every tenant he was to exercise the franchise as a free and independent Englishman (loud laughter)!

Lord KIMBERLEY said Mr. Read had very naturally entered upon a question which touched them all—namely, the independent exercise of the franchise by the voters of this county. Now, he (the noble Earl) had never wished to keep his opinions secret on this head. He was a liberal by conviction, and he had always shown it by action; but he held it to be the undoubted right of every man to exercise his franchise as an Englishman, according to his own opinions. It was very well known that some persons connected with himself supported Mr. Read at the last election, and he could confidently ask any man whether he saw his (Earl Kimberly's) face darker or had been treated by him differently, because he did not happen to vote upon the side he did. Don't let them mistake him; his view on this matter was clear. Business was a matter of business; they had no right to mix up their business relations with politics; and if they sought by their business relations with any man to make him vote contrary to his conviction they were guilty of a great act of oppression and unfairness. But at the same time—and he should be ashamed to make the declaration he had done, knowing that he could be contradicted, if he did not practice what he preached—he was not one who admitted that any man, when called upon, was doing his duty, if he did not endeavour, by every legitimate means of persuasion, to induce his friends to vote according to his views. Why, if they did not do this they would be meretricious. The question was—"Does a man make his business relations the means of inducing a man to vote contrary to his opinions?" If he did not, then he had done all he could be called upon to do as an honest Englishman. Mr. Read spoke of himself as the agricultural candidate *par excellence*. Now he (Earl Kimberly) held that landlords and tenants were equally interested in agriculture, and he wished to see them represented—and he considered he himself was represented as well as every other man by those whom they sent to parliament as members—he wished to see them represented by the man best qualified, be he landlord or tenant farmer. Some friends of his had thought he might be annoyed at what took place at the last election at their returning a tenant farmer; but he was far from objecting to their returning a tenant farmer, if they found a tenant farmer well able to represent them and no man more fit; his only objection was this—and it was a natural one—that they elected a Conservative and not a Liberal; and the best wish he had for his party was that they had a tenant farmer so able to represent them, and who would do his duty so well, as the tenant farmer whom the constituency elected. He (the noble Earl) had alluded to the relations between landlord and tenant. He had so frequently addressed them in that room—often at much length—that he should detain them but a short time as

the present occasion, but the mention of the relation of landlord and tenant led him to say a word on a subject of great public importance at the present time. His theory had always been that landlords and tenants being jointly interested in the land, the proper duty of each was very clearly defined—that the landlord should make the permanent improvements instead of the tenant, who otherwise might have to do improvements which would last longer than his tenancy, and that the tenant should have his capital unimpaired for cultivation. He wished to make an application of this. One of the questions most difficult to deal with at the present time was one on which they as farmers were eminently qualified to form an opinion—namely, the condition of the tenure of land in Ireland. He naturally took great interest in this question, having passed a long time in that country. Many of the difficulties in Ireland had arisen from the neglecting of what he held to be a cardinal principle between landlords and tenants. In many cases the landlords had not done their duty, by not executing the permanent improvements and leaving the tenants' capital unimpaired for cultivation. Independently of this, the tenants who had spent their capital in the erection of farm buildings, the draining of lands, and many other permanent improvements, naturally conceived that they had acquired over and above that ordinary interest which they all knew a tenant had in the soil; and then came a question extremely difficult to deal with, so that matters of contention arose between the two classes, and there was a continual bickering between them which was destructive to all advancement of agriculture and to all good society. This he believed to be one of the cardinal defects which existed in Ireland, and unfortunately it had grown up in such a long course of years, and was so interwoven with the people, that it was difficult for Englishmen to understand the difficulty that exists there, and he was going to say to deal with it in a proper way. He would not enter further into the question than to say that he entreated them not to look upon the question purely with English eyes; it was absolutely impossible to deal with Ireland upon a principle purely English—the state of society was entirely different; it was a state which had grown out of a previous history so fraught with calamities and sad reminiscences that they could not apply absolutely the rules and principles which govern this country and by which they knew its prosperity had been secured. They might tend towards them, but he was certain they would never succeed in introducing any great improvements in that country, if they judged everything by an English standard, and applied their remedies accordingly.

Lord SUFFIELD said Mr. Read thought it was desirable, as no doubt it was, that the landlords should not only formally say that they wished their tenants to vote as they pleased, freely and openly, but that they should really mean what they said. He was not inclined to quarrel with this; but he did say that in that district it was not necessary for him to state—for he was confident that every tenant of his in that room knew it—that he wished them to vote according to their consciences. In the prospect of an arduous contest things might be said and heard, but there was no occasion to pay any heed to them, inasmuch as he was perfectly satisfied with leaving himself in the hands of those who knew him. He was sure the sentiment he had expressed was entertained by the landed proprietors of the county generally.

Sir T. FOWELL BUXTON asked to be permitted to touch upon one matter of public policy which he believed was of great public importance at the present time—of so much importance that it did not approach to a party question. He referred to the incidence of taxation of different classes of men. It appeared to him that the tone of political feeling on this subject was far from being so favourable as they should wish it to be. Men's minds were most earnestly set in diminishing the taxes which fell upon themselves; they perhaps felt more now than ever, from a variety of causes, a horror and abomination of all taxes. This feeling was leading men to see how they could push taxes off their own shoulders to those of their neighbours. Not long ago, no doubt, most of the gentlemen present heard, and certainly all would have read, the report of a discussion which took place at the Chamber of Agriculture, where a great deal was said, and most weighty arguments were used, in favour of diminishing taxes which fell upon localities—local, union, and other rates, and numerous rates which fell upon the land and the occupiers of land; and the proposition which met favour was, that the resources of the country should

be called upon to take the burden. This involved an increase of the income-tax. He observed in a great many printed addresses, especially among the candidates for the metropolitan constituencies, that there was a great outcry against "the mischief and evil" of the income-tax; and some were setting up their backs against the tax, and were trying to get rid of it. Their object was to throw it upon articles of general consumption. This attempt would be met by a pretty strong opposition from a society called the Financial Reform Union, established in the North, whose members were using great influence in the direction of diminishing taxes upon articles of consumption. He need not allude to the malt-tax or to other questions, such as the reduction of the duties upon tea, sugar, and tobacco, to show them that no doubt there was a strong feeling to diminish taxes upon articles of consumption. If they had the income-tax lessened, and taxes upon articles of consumption decreased, how were they to get on without there being a further tax upon real and personal property? Men were striving to throw off the burden from one point to another; but what they ought to do was to utilize that energy and strong feeling in the direction of diminishing expenditure. What they ought to aim at was the reduction of that ninety millions a year which the country spent in its local, borough, and county expenses; and also consider the enormous cost of their naval and military forces in some of the colonies which were rising to independence, and would be able to take care of themselves. He had ventured to allude to this subject because of its importance, and because it was one on which he thought all parties ought to unite to try and carry out some good.

Mr. CHARLES BUXTON described an estate which he purchased in Ireland, with a view to show the condition of the land in that country, and the reluctance of the tenants to make those improvements which were so much needed. The treatment of the land was entirely beyond their conception; he found it all cut into very small pieces, as if they had been shaken out of a pepper-box—a man having a quarter of an acre in one place, another 150 yards off, and another 300 yards off. About one-fifth or one-sixth of the land was taken up in banks, and his tenant, to whom he had given a thirty years' lease, had cleared away those fences, so that he had turned 200 fields into 10, and had drained it in such a way as to do all his churning by water-power. He (Mr. Buxton) did not think there was a more enterprising farmer anywhere than he (the tenant) was, and what he had effected showed what might be done if the land was not subject to the cruel and wicked treatment it received from the tenants in many parts.

#### FROM ESSEX.

At DUNMOW: Mr. W. F. CLAYTON GLYNN said a nobler science than that of a farmer could not be found. The manufacturer was far from being in such an unselfish position. No farmer could say that at the end of twelve months he should have an adequate return for his labour, whereas a manufacturer could if his machines were in order; therefore he considered that the man who conscientiously became a farmer was worthy of the support of every one. In Denbighshire the cow did all the work; they went on in a dull way from generation to generation, which was enough to make an Essex man mad. Has agriculture in this district prospered as it ought to do? What has been done for agriculture? Does every farmer of the district feel that he is a unit in a vast machine? Is the labourer better off than he should be? Does the tenant-farmer know the nature of each field; the seed each field requires; how much manure it needs? Do they all keep accounts? He trusted the keeping of accounts was more in use than it was formerly, and was better understood. He believed Mr. Mechi was the only man who really kept accounts. (Roars of laughter). Well, but he did not know whether any other man dared to throw a stone at him. He (the chairman) knew the farmers had carried out the poor-laws; there were certainly ex-officio, but they were getting a very lazy set. Having been on the Finance Committee himself he would welcome any one who would come forward to the Finance Board. Then again the farmers must elevate themselves, because, as everything was progressing rapidly, the farmer himself must progress. It would be found that farmers must educate their children more highly, so that when they succeeded their fathers they would be prepared for the improvements which would take place. As to the labourer he was such a difficult topic

that perhaps he had better leave him alone; but they must understand that they could not do without him, notwithstanding machinery was so much in use. Perhaps the labourer's temper was not what it used to be, when fusion went out and broadcloth came in; and as there was said to be such a difficulty in getting the labourers to go to church, he could only say the church should go to them. This had had a great effect in London. He suggested the question whether the employer might not spend a certain sum among his labourers when good prices were obtained. The bankers had been in a manner doing this, and if the farmers were to do so would not the labourer say he had a share in the farm? He did not know whether this was a practical matter; but at all events the welfare of the labourer should be sought, for he aided very largely in the production of the soil.

At OŒGAR: Lord EUSTACE CECIL, M.P., said: I feel convinced you will agree with me that the condition of the labourer is very different now to what it was thirty years ago, when a nobleman who took an interest in the events of the day—the Duke of Richmond, I think it was—stated in the House of Lords that no serfs in any country in the world were worse used than our labourers, and none were worse provided for, worse fed, or worse clothed—not even the negroes of Africa. I believe that condition has now entirely passed away—at least, I hope so. I am quite sure it has in this district. But, if the labourer's condition is improved, I think his wants are also increased; and he now requires better education, better food, better clothing, better living for his family; and there is no doubt that railways, telegraphs, and all the inventions of modern science have acted on him as they have acted on every other class of society. I say nothing about his wages remaining at a standstill. I know what a delicate subject that is; and I believe it is very partially true, and that it is only in some districts that it is so. I believe that, generally speaking, the wages of the labourer have risen twenty and thirty per cent. all over the country; and I don't think, therefore, there is any ground, in the district in which you live, for the remarks that have been made and the movement that has been got up in some parts of the country. But still, I will say, I think the problem we have to solve—I may say the problem of the hour—is how to enable him to meet the increased expenditure which undoubtedly his better condition and state of living so imperatively require; and I cannot help thinking—and I throw it out merely in the form of a suggestion or a hint—that societies like these might very well lend a hand in some way or another to enable the labourer to provide for those fresh expenses which he is called on behalf of his family to meet—not by contributing in any way to the support of what to my mind is a most objectionable system, the system of trades' unions, which I observe has been advocated at meetings in various parts of the country, but perhaps by developing more fully what is called the co-operative system. I cannot but believe that the labourer wants is the power of spending his money so as to get the real value of it. This is no new thing. Co-operative societies have been founded all over the country. We have a great number now existing in the manufacturing North; and I cannot see why the system should not be extended with an immense degree of advantage to the agricultural South. But if any movement of this kind is to take place, it must come from above, and not from below; for I am sure that the labourer has not the time, has not the knowledge, does not know where to go to the cheapest market, and must entirely depend on those above him, and on those who employ him to carry out the movement, if practical experience shows it can be carried out to his benefit. I happened a day or two since to see some statistics not very long ago on the subject of co-operative societies. The paragraph caught my eye; and as it struck me as having an important bearing on the subject on which I might have to speak I cut it out, and I find it states that there are in Yorkshire and Lancashire a very large number of societies already established, and that in the year 1867 the goods sold by registered societies in these two counties amounted to over £4,250,000. Returns have been received from 577 registered societies of which 138 were in Yorkshire, and 127 in Lancashire. Now, I do not find the name of Essex even mentioned in this list, but when I look at the paragraph again I discover that there are co-operative societies, though to a very small extent, in Essex, and that only £23,346 was taken for goods sold during the

past year, as compared with £244,492 in Durham, £307,765 in Northumberland, £178,243 in Cheshire, and so on—it is not necessary to read all the numbers, for they don't very well come in in an after-dinner speech; but I quote them to show that a good deal of good has been done in many districts, and if the movement be approved of here, as I think upon consideration it will, I don't know a better work than lending a helping hand in the formation of societies of the kind, and thus enabling the labourer to eke out the wages, good or bad, he may receive. I think this is a matter to which gentlemen interested in this society should turn their thoughts. We all of us wish to help the society to do as much good as possible, and I cannot help bringing my small quantum, and very small it is, in the way of a suggestion or hint, and I sincerely hope others will improve upon it.

Mr. SELWIN-IBBETSON, M.P., was glad that the improvement of the labourers' cottages had been referred to, for he had always felt a deep interest in the subject as one having an important bearing on the welfare of the labourer. He was glad to see that a change for the better had for some time been taking place in that neighbourhood and in the county generally, and he almost wished the time might come when the labourer here might say to them what a labourer said to a friend of his in Durham the other day. His friend was talking to the man about his having no cause for dissatisfaction, for he had good wages, a good house, and so on, and his reply was, "Well, every man must have a hoose." (Hear and laughter). There, in fact, the rent of a man's cottage was considered as part of his wages, and he should like to see the day come when in this part of the country the rent of the cottage would be considered as part of the payment of the labourer, and he was sure they would be able to get back the rent in the improved work of the labourer.

#### FROM SOMERSET.

At EVERCRECH: Mr. NEVILLE GREENVILL said he might congratulate them on having certain political matters to discuss in which they were all equally concerned, and those politics had the other day been brought before a great meeting at Frome with much eloquence by gentlemen thoroughly acquainted with the agricultural interest. Three leading points were there introduced. First, the provision of a proper market for beasts, so that this country might run no risk of the rinderpest or of a new murrain in our cattle. Secondly, that during transit cattle should be properly protected, and that care should be taken of stock during transit on railways, and at the places of consignment; and he was quite sure that owners of stock were great losers by over-driven and unweaned for beasts, who so often infected whole herds with the foot-and-mouth disease. There was also the question of local taxation, so briefly yet ably brought forward by Mr. Andrew. The local taxes were increasing more and more, and yet we were told that the poor-rate had not been increased. But still it was the fact that the poor-rate was increasing day by day; and if those who had the rate did not lift up their hands to protest against the injustice done them, they might depend they would be taken advantage of. He had before quoted Horace Walpole's illustration made in the House of Commons, which was to the effect that the agricultural body were like a flock of sheep; you may shear them year after year, but they would not complain. On the other hand, the manufacturers were like the hog, which, if you touch one bristle, they will set up such a grunting and such a roaring noise, that you are glad to let them alone at any price. At the approach of a contested election (a laugh)—well, he would say, a general election—he might congratulate them on their prospects in respect to this question. There were forty gentlemen in the House of Commons connected with the Government who were not like the pigs; but if there were forty who thought thus, there were three times forty who were anxious to keep their present positions. What he wished to impress upon them was the fact of the huge burden upon them, and that each party said to the other, "It was you, and you, and you." It was the case of Peachum and Lockett over again: "Brother, we be both in the wrong." But having found the cause of the excessive expenditure, it was their duty to consider by what means that expenditure could be decreased. However, he feared they must not expect any great decrease in taxation. John Bull was too extravagant a gentleman for that, and there was an increase in his family every year—an example

which he (the Chairman) had followed in his own family this year, and everyone indulging in such luxuries must make up his mind to pay for them. Moreover, they owned that if John Bull's family increased in number his wealth also increased, but in that respect he (the Chairman) differed from Mr. Bull.

Major PAGET, M.P., said the agricultural world was crying out, and with great reason, for the more active and accurate inspection of stock into England, so as to save our stocks from the enormous risks of foreign disease. Besides this, there was another great interest gradually rising, an interest which was not derived simply from one class, but from the towns as well as the country, and which now asked energetically for redress from the present system of local taxation. They told us, not without good reason, that there were anomalies and inequalities to be redressed, which are indefensible, and which should no longer exist. But there was a very long way between finding out a grievance and removing it; but he thought this question might be grappled by the next Parliament. The expenditure of the nation was another great question which came home to all, one which must have great attention before we could decrease the public expenditure, without also decreasing the public efficiency.

#### FROM BERKSHIRE.

At MAIDENHEAD: Sir CHARLES RUSSELL said that those meetings were held in the main for the benefit of the labouring class, and the condition of this class was about to engage the attention of Parliament. He said this because "Coming events cast their shadows before," and the other day he chanced to meet a gentleman who was drawing up a report of the condition of the hop-pickers, and although it was hardly fair to class them with the agricultural labourer, because the former really belonged to the seam of London, yet, notwithstanding that, the condition of the agricultural labourer was one that unquestionably required looking into. No doubt it was more a landlord's than a tenant's question. The subject of labourers' cottages had very much to do with this matter, and it was not merely whether the cottages were good or other-

wise, but whether they were situated at a long distance from the farm where the labourers were employed. He hoped that landlords would do their best to forward education. It was the fashion to say that agriculturists were a very grumbling, discontented, people, and he believed that they did enjoy a grumble as well as other people; but grumbling was not confined to them. An umbrella-maker was once asked how he was getting on, when he replied "How am I likely to get on when it won't rain?" After there had been rain the person happened to call again on the umbrella-maker, and made the same inquiry, when the reply was "How am I to get on? I ain't sold a parasol all the week." He believed agriculturists were disposed heart and soul to go into the question of the condition of the agricultural labourer, and in their hands he believed it was safe.

Mr. BULSTRODE, in alluding to steam cultivation, said those who have to-day watched the progress of the teams in our field, and have examined the result of that progress in the straight and beautifully-laid furrows, and those who witnessed, as I did, the trials at Leicester during the last summer, and saw the teams of magnificent horses fairly tearing themselves to pieces, or positively stranded, in their attempts to crack the hard-baked soil—and who saw also that same soil and subsoil rent and shattered to double the depth, with the most perfect ease, by the agency of steam—could scarcely fail of having the conviction forced upon them that, however beautiful and valuable may be the horse-plough in its place, it cannot for one moment compare with the steam-drawn implement, for grand efficiency, rapidity, and power, and therefore for economy. Proved apparatus, suited to every soil and every situation, is ready to our hands, and, depend upon it, the sooner we make it our own, the better shall we be prepared to face those fluctuations in the price of wheat which we have most of us known before to our cost, and shall doubtless know again. Strongly as I would advocate its use, we must not trifle with steam cultivation; it must not be taken up as the toy of the fanciful, or the forlorn hope of the bankrupt; but it must be regarded and used by the practical man as his "bank of power," the bank upon which to draw for his supplies of power.

#### THE RELATION BETWEEN LANDLORD AND TENANT.

At the annual dinner of the Boroughbridge Agricultural Society, Sir GEORGE O. WOMBWELL said: Gentlemen, in fulfilment of my promise I shall, with your leave, read a short paper on the relationship which I think ought to exist between landlord and tenant. It is a delicate subject to handle, and I am anxious not to give offence to my brother landlords or to the tenant-farmers; and I must ask your kind forgiveness if my paper is not up to your expectations, as my time has been taken up so much of late. Last night at nine o'clock I was in London, so you see that I have had to travel all night in order to be with you here to-day. Now, I have no wish to boast of what I have done, or to sound my own praises too loudly. I am only going to give you a truthful statement of what I have done, and my views on various subjects connected with the question that I have been requested to write a paper upon. I have devoted, as many of you know, a great deal of my time for the last fourteen years to the improvement of my estates in the North Riding, and in endeavouring to advance the position of my tenantry. Now my first object was to make my tenants thoroughly understand what I required of them, and my next care was not to allow any obstacle to intervene which might prevent my tenants from farming well, and profitably to themselves; and by acting upon these principles, my tenants, I have reason to believe, gained confidence, for I have seen decided improvements in their farming every year since we became better acquainted and better understood each other. In my opinion there ought to be a most distinct understanding between landlord and tenant, with a feeling of confidence and security, and unless this exists, it is impossible, I think, for things to go on smoothly and well, as they ought to do, on every estate. Whilst upon this subject, with your permission, I will touch upon two or three subjects connected with nearly all estates. I have before told you that I never

permitted any obstacle to intervene to prevent my tenants from farming well. The chief object I meant to allude to was game. I may tell you, gentlemen, that I have seen the ill effects of game. About twelve or fourteen years ago my estate was overrun with hares and rabbits, and I saw directly that if I wanted to get the estate into good order these animals must be swept away from the face of it, so accordingly I had them killed down. Now, in saying this, I should be very sorry to see the game laws abolished, and this for many reasons, one reason being that if it were not for the game and shooting many noblemen and gentlemen would never visit their estates at all, and consequently would spend their money elsewhere, instead of circulating it about in the locality in which they lived, and we all know that it is a most disastrous thing for that estate which the owner never resides on or sees from one year to another. Now, I like to have game in a reasonable quantity for the purposes of pure sport, and I do not think that a fair number of pheasants and partridges can do any harm, because it is the ground game no doubt that does the mischief, and therefore I am desirous of having hares and rabbits kept down within due limits. There are some of you who may perhaps say that it is better to farm under an absentee landlord, and have no game, than to farm under a resident landlord who has a great quantity. In this I do not agree, inasmuch as, if I were a tenant-farmer, I would a thousand times sooner farm under the gentleman who lives amongst his tenantry, and has much game, than he who never comes near them; for there are, as you know, many little things that a tenant can get from his landlord who is resident on his estate (and this may make up for a little damage done by the game), which he would never get from the agents. I know no time when a landlord is so vulnerable as when he has had first-rate sport on his farms;

and that is the time, you may depend upon it, for the tenant to attack him, should he require a little drainage or help towards improvements. Let us look, gentlemen, in the next place, on the other side of the picture. If there was no resident landlord and no game, the tenant would have to apply for any assistance he might need to the agent, who was probably a respectable old family solicitor, living one hundred and fifty miles away, and whose reply would be (if he condescended to reply at all before the rent-day) that he had orders from the absentee proprietor not to lay out a single shilling. I may tell you that ground game, in my opinion, is the curse of many estates in this country and also in Scotland, and mainly the cause of half the bad farming we see in this and other counties. You must please to bear in mind that I allude only to hares and rabbits; for I feel quite sure that no tenant farmer would ever object to any quantity of partridges and pheasants, so long as his landlord kept down the ground game. I have asked my own tenants, and many large tenant farmers in this and other counties, if they objected to winged game? and one and all have told me that they do not, but, on the contrary, they like to see it, because it affords pleasure to their landlord and his friends. The fact of game being on the estate brings the landlord amongst his tenants; and on my own estates I do not hesitate to say that not one of my tenants would wilfully destroy a nest. How different this feeling would probably be, if I allowed their crops to be eaten up! Upon some large estates that I know the land is let much under its real value, in consequence of the landlords wishing to have an immense head of game. On one fine property in Nottinghamshire the landlord, who is a great friend of mine, lets his land much under its rent value (and on his estate is some of the finest land in the kingdom), simply because he likes a great quantity of game of all kinds. The tenants of this landlord, many of whom I am acquainted with, have been, with their families before them, there for generations. They are men of capital and enterprise, and to all appearance a most respectable class of tenants. It is certain that they are perfectly satisfied, and that they are glad at all times to see their landlords; for they come out for a day's sport along with the shooting party. If they complained of damages by game—which they did not—nobody, I should think, would pity them. How different would this state of things be, if their farms were let to them at their full value! I do not wish to offend my brother-landlords; but my advice to them upon this subject is, if they desire to see their estates and their pockets improve at the same time, not to allow their tenants to have their produce eaten up with game, but to be contented with good average sport. In such case, the tenant farmer will then be glad to see his landlord enjoying his legitimate sport on his estate, and the landlord will also have the pleasure of being able to look his tenant in the face with the satisfaction of knowing that he is not letting him his land and stocking it himself. Now I will touch upon another subject, namely, upon the question of security. In my opinion every tenant farmer in these days ought to ask for and have good security for the capital he invests on his farms, either in the shape of a well-framed yearly agreement, or a fourteen or a twenty-one years' lease. I have often been asked what I think of the lease, and I will tell you my opinion respecting it, and the experience I have had of leases on my estates. About eight years ago I found myself in possession of some farms in a terribly run-out and exhausted state, and as the farms became at liberty I determined to try the experiment of granting fourteen-years' leases to the in-coming tenants. I took care to ascertain the character of these men, as to capital and other matters, and I selected those whom I thought the most suitable. I gave one a twenty-one years' lease, and the other a fourteen years' lease, and I am glad to say that I have never yet had cause to repent of the step I took upon that occasion. These tenants have made great improvements on their farms at their own expense, and are farming now in a way that only a man can farm who knows he has good security for the money he invests. I was told by some of my friends that I was making a great mistake in introducing leases into this part of the country, and that I should regret it. Well, so far from regretting, I should now like to show the six farms I have let upon lease to them or to you, gentlemen, who are well-known good judges, and I feel confident that both you and they would say that the experiment had proved eminently successful. Upon some large

estates that I know of the lease is unknown and unasked for, so great probably is the confidence and goodwill and relationship that exists between landlord and tenant; and, in my own case, not long ago a tenant of mine, for whom I entertain the greatest respect, on hearing that I had granted a fourteen years' lease, went to my agent, and asked him if he thought Sir George would give him a lease. The agent replied that he felt sure I would if he asked, and on hearing this the tenant felt confidence, and said that was quite enough for him, adding that he would not have a lease, as he was made aware that Sir George was ready to grant him one. Now this, in my opinion, is the sort of feeling that ought to prevail between landlord and tenant. In these days, however, I cannot blame a farmer of capital, skill, and energy, for asking for security. He may have a good landlord, but that landlord is only mortal, and may die at any time, and another king may spring up "that knoweth not Joseph," of quite a different stamp altogether, or the heir may be a minor, and the estates may fall into the hands of trustees, whose duties are well known to you, and perhaps the estate may get into Chancery. I do not mean to say that the lease ought to be the rule, and, in my opinion, the landlord ought to be very particular to whom he parts with his property for a length of time. I do think there ought to be some better security than the absurdly old agreements now in use on some estates, which frequently tie down and hamper the tenant, and prevent him farming in a profitable manner to himself, for it ought to be remembered that no man, in these days of progress and civilisation, doing well on his farm, and being anxious to remain as tenant, will be such a fool as to try to injure it. As to the management of an estate a good agent is everything to most landlords, and I must say that most fortunate am I in this respect. But however good the agent may be, there is nothing in my humble opinion like the master's eye taking a glance as to how matters are going on, and if the landlord knows anything about the management of his estate, and can distinguish between good and bad farming, such landlord I am sure will agree with me that it is a fatal mistake to keep a sloven upon his estate, not even if he pays his rent with the greatest punctuality. I know well that there are plenty of good tenants to be got for farms on estates which are well cared for and looked after, tenants who will not only pay their rent regularly, but farm well and improve their farms and also themselves, for it is a well-known fact that a man who does well to his farm does well at the same time to his landlord and likewise himself. I would now say a word or two about the labourer. After all, both landlord and tenant are much indebted to him, and I do think that we, as landlords and you as tenants, do not pay that attention to his social condition we ought to do. On many large farms that have cottages let with them the labourer's dwelling is often most wretched, and sometimes dirtier than the buildings on which the farmer houses his stock. Anything in some people's eyes (I will not say all), is good enough for the labourer, and yet how could we get on without him, for notwithstanding the progress which has been made in machinery we are still obliged to employ the labourer. If we are, therefore, indebted to him, ought we not to devote some of our time and care to the improvement of his condition in the scale of society? I think that it is the duty of every landlord to provide the labourers upon his estate with proper dwellings. I know as well as any man, by experience, what an unprofitable investment, in a pecuniary point of view, the building of cottages is upon an estate; but I am convinced, and I speak from a practical knowledge on the subject, that the landlord is in the end well repaid in providing good dwellings for his labourers, inasmuch as although the cost may be considerable in the first instance, as I know it is by experience myself, yet the landlord for his outlay obtains a better class of men, and his work is more efficiently done. To conclude my paper, I may say in general terms that in my opinion the right feeling which ought really to exist between landlord and tenant is a confidence on the part of the tenant that he is safe in his farm, and never likely to be disturbed, either by having his rent raised or his land taken from him, so long as he farms well and keeps his house, buildings, and everything belonging to the farm in good order and repair; and on the other hand a feeling on the part of the landlord that he has a good tenant, and that he would be sorry to lose him. Depend upon it, and I speak from experience, that when this proper feeling exists everything will work well, the tenant will prosper as he ought to do, and make money, and the landlord will have the pleasure

of seeing his estate going on improving, and becoming more valuable ever day.

Mr. BROGDEN would just make one remark with respect to game, as to which he agreed in the main with the hon. Baronet. He should prefer having a farm upon lease, at a fair rent, when the game was kept under, than pay a low rent with the game in abundance.

Mr. JACOB SMITH said that Sir George Wombwell had taken up the question so fully that scarcely any room was left for further observations, and he seemed to be more in favour of the tenant farmers than the landlords. If a tenant farmer had delivered the address he could not have put the case of the tenant more strongly than the hon. Baronet had done. With Sir George's remarks upon game he generally agreed, and he felt quite satisfied that in England non-resident landlords would be a curse to the country. The state of Ireland he attributed to absenteeism on the part of landlords. He hoped that landlords would not be so selfish of their own pleasure as to have an excess of game on their estates. A superabundance of ground game was most injurious to the community, and it tended to lessen the supply of bread. He, therefore, trusted that for the sake of a few days good sport landlords would not encourage to an undue extent the ground game. The question of leases was rather of a ticklish character, and it could be viewed in different lights. There was an immense difference now in farming to what was the case thirty or forty years ago, as now-a-days double the capital was required, and therefore the tenant stood in need of greater security. A good yearly tenancy upon a large estate with a liberal-minded landlord might answer better than a lease, but then it must be remembered, as Sir George had said, that a good landlord might die unexpectedly, his property might come into the hands of a different kind of landlord, or it might go into the hands of trustees, or perhaps into Chancery, and the tenant might be placed in difficulty. He thought that a tenancy with good security had its advantages, but a lease was the safest in the long run. Tenant right upon paper seemed all very well, but he travelled over parts of the country where tenant right was much in fashion, but he had never seen good farming with it. The county of Surrey, in which tenant right prevailed, was very badly farmed. An objection to leases was that the tenants having them did not pay proper respect to their landlords like yearly tenants, but he did not think such was the case. A lease was safe for the landlord as well as the tenant, and it was well, as Sir G. Wombwell had done, to inquire into the character of a tenant before a lease was granted to him.

Mr. FORD said he must take exception to the remarks of Mr. Smith relative to tenant-right. In North Lincolnshire tenant-right was the general rule, and the lease was there unknown. The regular system of farming there was regulated according to tenant-right, which answered remarkably well, and was thoroughly appreciated, compensation being allowed for drainage, liming, and other things. If the farmers had a lease offered to them it would not be accepted. He hoped the re-

marks made by Sir G. O. Wombwell would be extensively circulated through the press, and bear fruit a hundred fold to the benefit of the tenant-farmers of this country.

Sir G. O. WOMBWELL said he agreed with the remarks of Mr. Brogden, observing that if he were a tenant he had rather pay a larger sum per acre for his land which had little game upon it, than take a farm at £3 per acre worth £3, where the game was numerous. At the same time a landlord had a right to let his land at £2 per acre under such circumstances, and a tenant who took a farm of this sort with his eyes open had no cause to complain if he was damaged by game, seeing that he paid a low rent.

Mr. SCOTT said that about nine months ago a list of the lectures for the year 1868 was published, since which time he had frequently been asked by landowners and others how Sir George would get out of the difficulty of disposing of the subject that he had undertaken. Now he thought that Sir George had done so most satisfactorily, and at the same time he had spoken in an unreserved manner; but he believed that Sir George had done more towards the improvement of his estates than any other landlord in the county, and therefore he was more at ease in dealing with this subject than most landlords would have been. With respect to the game question there was but one opinion amongst well-thinking farmers, namely, that nothing gave them greater pleasure than to see their landlords and friends have good sport whenever they shot over their farms, and that they had no objections at all to keep a good show of birds and hares; but to have their fences, their expensive drains, and their embankments uprooted and spoilt by rabbits was what soured the majority of farmers, and he was sure that if the latter were kept down, complaints would scarcely be heard of. He believed that farms generally held under leases were better farmed, and that such circumstances were scarcely ever abused by the lessee; on the other hand he thought that the generality of our landed proprietors were to be trusted, and would not quit a tenant without sufficient cause, yet there were instances where great injustice had been done in this way. He thought that most of the farm agreements were as objectionable and unbusiness-like as they well could be, and some of them were drawn-up without regard to practical matters, and so framed that it was impossible for a tenant to fulfil the conditions thereof, and he thought that nothing was more needed than a fair agreement binding alike the landlord and tenant. With respect to tenant-right he had observed that in several counties where it existed, superior farming generally prevailed, and he should be glad to see its operations more extended.

Mr. FORD expressed the pleasure he felt at the admirable paper read by Sir G. O. Wombwell, who had given utterance to sentiments which would be appreciated by the whole of the farmers of the district. He moved that the thanks of the society be given to the hon. baronet and entered on the minutes.

Mr. JACOB SMITH seconded the motion, and it was adopted by acclamation.

## WHEAT SOWING.

The autumnal rains which have fallen so copiously on the previously parched and cracking soil, have acted most favourably in bringing it into the best possible condition for the reception of the seed of this the most valuable and important of the cereals. The grand crop of the present season, even although the price is a comparatively moderate one, will make the acreable return considerable; and, consequently, farmers will be induced to get as much land seeded with wheat as their arrangements and the state of their land will permit. Already we find there are men proposing to take wheat after wheat, and even after barley and oats, the latter being unusual, although by no means unprecedented. Taking wheat after barley is but reversing a very ordinary course, and one that, while holding out manifest pecuniary advantages to the farmer following it, does no injury to the land. When the preceding green crop has been treated

with liberality the soil after the barley is still in excellent condition for being laid down to grass; the clover doing splendidly, and affording as good cuttings as if it had been sown with the first crop. Providing the land possesses good natural stamina it is difficult to see how wheat would not do quite as well after barley as barley after wheat, of the two the latter being the least exhaustive. Local influences have frequently a good deal to do with the success of particular crops, hence a departure from the usual rotation may be perfectly successful, and, consequently, admissible in one district; while in another the same experiment would be totally unsuccessful. Oats differ from barley thus far: that the land on which they are grown is not generally in such good manurial condition, and, therefore, when wheat is attempted after this crop it can only be done under exceptionally favourable circumstances. The suitable conditions for obtaining successful results,

when such a deviation as this is attempted, are found when the oat crop which the wheat succeeds has been grown on rich, or even on only moderately rich, grass land, which has been broken up for the first time after having lain to pasture for several years. The half-rotten skin aids, by its gradual decomposition, the growth of the wheat plant in all the different stages of its growth, and proves quite capable of nourishing the crop until it arrives at the period of maturity. We have proved this experimentally, under the exact conditions now stated, having grown a field of wheat after oats about ten years ago. The soil was light, portions of it rather thin and brashy, and very stony; yet the straw was exceedingly tall and strong, bulking largely, and the produce in marketable grain of the very shiniest and best quality, so near four quarters to the statute acre that at 60s. a quarter it made within the merest trifle of £12. This crop was assisted by a dressing of nitro-phosphate, costing about 30s. per acre, harrowed in with the seed, the latter being sown broadcast at the rate of as nearly as possible  $2\frac{1}{2}$  bushels per acre. We have never repeated the experiment, not, however, from its non-success, the very opposite in our opinion being the case; but simply because, apart from its interfering with existing arrangements, a crop of swedes grown with artificial manure is better farming, let the land be ever so rich, and pays better both for the present and in the future. So much of the fallow-break, even on heavy clays, being now occupied with green crop, and time having to be allowed for their coming to maturity, and also for their removal to some convenient place to be stored for the winter, November has become of late years the principal month for wheat-sowing. The present season, however exceptional in many of its phases, and presenting as it has done so many disturbing influences to the ordinary farm routine, is still true to its character, and a considerable breadth of land on which turnips had been sown, and, from the excessive dryness of the season, proved a failure, has been already seeded with wheat. Although on those soils favourable to the growth of the turnip there has been a marked improvement on the crop since the rain, yet on much of the heavy soils so complete has been the failure that there was actually nothing on the land to prevent the seed-furrow being given save a few miserable tops, fit for no purpose but that of being thrown on the pastures for the sheep to pick at, and of but little use even for that. The latter half of October, and the whole of November, would seem to be the period indicated by Nature for wheat-sowing, as when then sown there is much greater surety for the crop; it is better filled, and heavier, and sounder in every way than is the case generally speaking when the sowing has been delayed until December, unless the season is exceedingly favourable. This of course refers to those wheats suited for autumn-sowing only; as there are certain varieties of wheat which do admirably for spring-sowing, superseding barley on land in high manurial condition, where the latter would be in danger of rotting, or at least becoming so much injured as to produce but a poor return. If at all possible, some little time should be permitted to elapse between the giving of the seed-furrow and the sowing of the seed, a certain amount of firmness, and even solidity, being highly essential to its future well-doing. This feature in the character of the wheat-plant was well illustrated in Ireland during the palmy days of the potato, when the lazy bed system was almost the only way in which this crop was grown. Whatever the rotation followed, the potato invariably took the first place, the grass being ploughed just as light as could well be managed into narrow beds, and the sets inserted in the soil through holes cut with the long-handled spade peculiar to the country. By the time the potatoes were lifted the grass was only half-rotted, and

covered the surface in little lumps, abounding with all the constituents of plant-life. Wheat always followed the potato, and thrived amazingly even on the lightest land, the firm bottom and decaying matter abounding in the soil being eminently conducive to its vigorous and successful growth. On farms where this system is still continued, the superiority of the wheat crop on the thinner soils is easily perceptible, one great advantage being that it is not nearly so liable to injury from the vicissitudes of the weather as when grown on land rendered porous and open by one or two years' extra working. There are many favourite modes of seeding the land with wheat; and much diversity of opinion exists as to the quantity which should be given per acre. Whilst the most forward and pain-taking agriculturists of the present day confine themselves to 1 bushel per statute acre, considering it ample, and showing, without the shadow of a doubt, by the excellence of the crops they raise that it is so, the great bulk of British farmers continue to sow from  $2\frac{1}{2}$  to 3 bushels; and comparatively few converts are made to the thin-sowing system, notwithstanding the large amount of publicity courted by its advocates and followers. The broadcast-machines, as now constructed, deposit the seed with unfailing precision, and are a great improvement on the hand-sowing system, as, however small the quantity of seed used, it can be distributed over the surface with the utmost regularity. The drill-machine is an improvement on the broadcast; inasmuch as the soil can be cleaned and aerated by the use of the hoe during the growth of the crop, thus rendering it two important services; and the land, at the same time, is materially served by being freed from the presence of annual and other weeds. Unless the hoeing is properly performed, it is of but little use getting a drill, or attempting to raise a full crop of wheat on the minimum quantity of seed, as, under ordinary conditions, it can only result in failure, the weeds, from the thinness of the plant, having abundance of both light and air to enable them to do battle successfully with the cereals. Many men, from neglect of this, have become discouraged at the very outset, and condemned a good principle as a failure—at least on such land as they themselves farm—solely on account of their omitting to carry out the necessary details required for profitable cultivation. A great deal also lies with having a proper drill; the use of an inefficient implement by a beginner being quite enough of itself to drive him from again trying the system for years. If the drill is not sufficiently powerful to lay the seed to the proper depth, much disappointment will result at the ingathering of the crop, as the straw will be unhealthy, and the ears, although large, soft, and flabby, sadly deficient in both quantity and quality. It is true economy to get a drill of the best construction at the very outset; although the first cost is high, it amply repays itself in the end. It first of all does the work properly; and second, is of general utility: sowing turnips, mangolds, and even carrots on the flat, and doing all in such a superior manner as to leave nothing to be desired in the shape of improvement. A beginner, to satisfy himself of the improved results to be obtained by using the drill, could, before investing his money, borrow one from a neighbour, and sow a field or portion of a field with it; or hire one, which can easily be done in many districts, and then he is able to decide from practical experience on his own fields whether it suits him or not. To obtain a successful braird, and healthy growth afterwards, wheat requires a moderately-good covering, seldom doing well on light land when simply harrowed in. If frosts occur, many of the plants get thrown out, and unless the maximum quantity of seed has been used, the crop stands in great danger of failure, often requiring to be ploughed up, and a spring crop substituted. To secure



the necessary amount of covering, it is excellent policy when the seed is sown broad-cast to harrow down the last furrow, sow on the smooth surface, and cover in with the small seeding plough. Each horse will cover in about an acre, so that the extra expense is not much, and the improvement great, there being almost no danger of the plants being thrown out by frost when they have such a firm hold of the ground as this mode gives them. On small farms, where the land was in a very fine state as regards tilth, and the help not over abundant, so as to overtake any extras of this sort, we have seen excellent work made by having a plough with a hinge across the centre of the mould-board, with which to give the seed furrow. The outer edge of the board being turned in a little to the plough, the furrow is not closed completely, a small groove being left, into which the seed falls, and when coming up it has all the appearance of having been drilled, which in reality it was, though without the aid of a machine. This method of sowing wheat can only be adopted, as will readily be seen, when the land is exceedingly fine, and occurs mostly on land which, being near a good market for the sale of potatoes, is seldom permitted to be long enough in grass to acquire any amount of

solidity. To grow wheat successfully, it is necessary that the land, whether light or heavy, should be in good manurial condition, and if any portion of a field has not been over well treated for the green crop, a little well-rotted yard dung, or a slight dressing of town manure will well repay the expenses incurred in its application. If these are not to be had conveniently, a quantity of fresh mould dug out from the edge of the headland, when it can be had, and spread over the lighter parts of the field, will greatly assist the growing crop, rendering it more even, and prevent it in a great measure from withering off in the event of a lengthened drought. Portable manures, rich in ammonia, are peculiarly efficacious in promoting the growth of wheat, and Peruvian guano and nitro-phosphate on that account form excellent fertilizers. Some men apply at the time of sowing; but, in general, if the winter is mild, there is considerable danger of too luxuriant a growth being induced, and it is therefore considered better policy to delay its application until the spring. When put on, then, its effects are immediate; the colour changing at once into a rich dark green, the plant tillering out, and starting into vigorous growth.

## SALES OF STOCK.

### THE KILLHOW SHORTHORN SALE.

BY MR. STRAFFORD.

The Nunwick and Blencow sales in the east of Cumberland are now fairly matched by those at Brayton and Killhow in the west. Mr. Foster's herd was not of long standing, but he had bought with great care and spirit, and the presence, more especially, of old Moss Rose and two of the Princess tribe made it certain that the sale would have a large following from the south and elsewhere. The list was strengthened by four bulls from the Duke of Devonshire's herd, to wit, Baron Oxford 8rd, from the 600-guinea Lady Oxford 5th, a level stylish beast, but rather light of flesh; Windermere, of the Wild Eyes tribe, of fine colour and quality; Dunkeld, from the Blanche tribe, thick, and with good hair; and Seventeenth Duke of Oxford, from Grand Duchess of Oxford 9th, a straight-topped calf, and a little plain at the tail-head. The respective purchasers were Lord Kenlis (250 gs.), Mr. Hunt (105 gs.), Lord Zetland (180 gs.), and Mr. George Moore (100 gs.), for a friend whose name did not transpire.

Killhow is situated about five miles from Wigton, to whose Farmers' Club Professor Voelcker, at Mr. Foster's invitation, delivered a very interesting lecture upon manures and feeding-stuffs, which was enlivened at last by some interesting facts as to a vegetable and meat diet in the cases of men in general, and of Mr. William Lawson of the Co-operative Farm at Blennerhasset in particular. Both sects had full scope next day, as friends and neighbours were all welcome at Killhow, and no less than eight hundred sat down to a lunch in a tent hard by the sale-ring. Sir Wilfrid Lawson took the chair, and in the few well-chosen sentences in which he spoke to Mr. Foster's worth as a friend and neighbour received the fullest indorsement from the company, when that gentleman presented himself to reply. The spot was a very beautiful one, with the massive white stone turrets of Mr. Foster's new home in the back-ground, and Skiddaw looking down upon many a deep valley and silent tarn in the far distance. The quiet dalesmen trudged to the scene of action, and made quite a day of it; and the agricultural worthies

of Cumberland, headed by Tom Gibbons, might be seen seated round the ring for four long hours, cheering whenever the biddings rose to fever-heat, and smoking their "churchwardens" in supreme enjoyment. The buyers and bidders from a distance composed Lord Kealis, Lord Dunmore, Lord Feversham, Lord Zetland, Messrs. Clayden, Cheney, Lynn, Lawson, Gell, Lacey, Adcock, Balmers, Culshaw, Sheraton, Roper, Slye, Simmons, Atkinson, Bamford, and others.

Polly Gwynne, a large, sweet-looking cow, the very type of old Elvira, except in colour, and bearing her fifteen years bravely, made 28gs., or a guinea advance upon what was originally paid for her. Old Fairlight, a particularly short-legged and massive cow, but rather gaudy behind, had to bate 23gs. of what she cost at Clifton Pastures; and the low and lengthy Lady Oxford 12gs. of her Lawford price. Moss Rose then entered the ring, looking remarkably well for ten years and a quarter. Mr. Drewry started her at a hundred, and Lord Kenlis, Mr. Brogden, Mr. Clayden, Mr. Davies, and Mr. Slye soon drove her along up to 800. At that point Mr. Davies was left in, and a series of ten-guinea bids between him and Mr. Stafford, who held a commission for Mr. Leney, resulted in the mother joining her daughter in the Mere Old Hall herd. The old cow has now been sold four times—for 260gs. as a calf at Cobham, for 245gs. at Mr. Hales's, for 280gs. at Mr. Bette's, and now for 400gs. Turk's Darling, a deep massive cow, with quite the frame for a Smithfield Club winner, became Lord Kealis' at 75gs.; and his Lordship had to fight hard for the next lot, Duchess Gwynne, another of the thick good sort which Mr. Foster always went for. Mr. Thornton made a couple of bids, but Mr. Brogden and his Lordship were soon left alone, and it ended in favour of the latter at 180gs. Their positions were reversed at another close finish, when the good-joined Princess 2nd was soon after knocked down, amid loud cheering, for 300gs. The return match between the pair was fought out over Princess 8rd, by Fawsley Baronet from Princess 2nd, a nice heifer, with a sweet head, but rather drooping behind, and ended in favour of his Lordship at 330gs. Mr. Foster only paid 71gs. for her at the Havering Park sale last year. Oxford

Lily (85gs.) was a very clever yearling, and Mr. George Moore, who bid most perseveringly for several of the lots, took her for 85gs. Fantail 4th, a lengthy, deep-fleshed heifer, with rare crops, but with a slight tendency to go in the back, brought out some capital biddings, and Mr. Stewart eventually bought her for Mr. Fawcett of Scaleby. Countess Gwynne had a very neat forequarter, and Sir Wilfrid put her in at 80, but Mr. Brogden, whose platform had broken down, "under the weight of the brass," bid as hard as ever from the box of a neighbouring barouche, and added her to his store at 240gs. There were no more female purchases of importance, and the average for the 56 was £67 16s. 9d.

Royal Cambridge by Grand Duke 4th from Moss Rose, and a private purchase for 200 gs. from Mr. Betts headed the bulls. He is now nearly three years old, very massive and level, but still showing his hind legs the effects of early forcing. There was some good bidding for him, but Sir Wilfrid's mind was made up, and at 240 gs. the royal roan was bound to the Brayton pastures, where he will no doubt beget many royal Doras and Fops, if the "Darlings" and "Flirts" are worthy of him. His own brother Royal Cumberland was sent for next, out of his turn, and his fine promise at seven months, and especially good long quarters, tempted Mr. Fawcett at 160 gs. Fop, from Flirt, was a very useful young bull, and Mr. Blackstock also kept him in the neighbourhood at 65 gs. Ten bulls averaged £64 13s. 7d. The principal buyers beyond Mr. Davies, who had fulfilled his mission when he took Moss Rose, were Lord Zetland (2), Lord Dunmore (2), Lord Kenlis (10), Sir Wilfrid Lawson (10), Mr. S. Moore (4), Mr. Brogden (4); but Mr. Cheney only bid once. Moss Rose's two sons made, conjointly, just as much as herself, and the old cow was served on July 13th by Tenth Grand Duke. The average of the four Fantails was 63 gs., and the two Princesses 815 gs., and the three Gwynnes 149 gs. The whole proceeds of the sale were £14,445 14s., which gives the excellent average of £67 7s. 9d. for sixty-six head. With the exception of a slight shower the weather, till within a few minutes of the end, was unexceptionable, and a large number of Shorthorn visitors sojourned at Carlisle to be off betimes to Scaleby Castle next morning.

## THE SCALEBY SHORTHORN SALE.

BY MR. STRAFFORD.

Mr. Fawcett's herd is of long standing in the district, but although containing many very useful animals, it lacked that fashion which made the great attraction at Killhow. Much of the stock could be traced to a cow Butterfly that had been purchased by the advice of Mr. Bates, of Kirklevington, where Mr. Fawcett was a pupil. He had, however, always adhered to the old Elvira stock of the "Princess" blood, and the earliest bulls were all bred from that family. Later on he used bulls from Kirklevington or of Bates's blood; Disraeli (10125), was one of the best, and Fourteenth Duke of Oxford (21605) had been in use for the last four years, and now headed the bulls. The sale consisted mainly of a selection from the large herd, and the 71 animals sold averaged within a few shillings of £30 each. The cows were quite of a type level and straight, with much style and good udders, several with capital calves at their side. 48 gs., the highest price for a female, was given by Mr. Drewry for Elvira 10h, a nice square well-made cow; and he also took Lady Butterfly Princess for 46 gs. Mr. Foster, of Killhow, bought half-a-dozen young cows and heifers by way of stock in the place of the herd just sold, and three fine young heifers found a customer in Mr. Brierley, of Rochdale, at 46 gs., 27 gs., and 26 gs., respectively, to go

as companions for the unbeaten Bolivar. Mr. Binning Home purchased three, which will find fresh pasture on the banks of "Bonnie Doon." Eliza (29 gs.) a nice one and a capital breeder goes with Queen 5th (35 gs.) to Mr. Beattie, of Newby House, by the Solway's side, and Mr. Sheraton bought Antonia 4th, to go into Shropshire. Messrs. Parker, Highfield, Wilson, Bell, Todd, Richarwa, Norman, Thompson, Senhouse, and Head were the principal county customers.

Fourteenth Duke of Oxford, a thick good bull, and the sire of all the two-year-old and younger animals, was put up at 25 gs., and went on slowly at single guinea bids up to 71 gs., at which sum he was bought by Mr. Hetherington. Among the fourteen bulls, which averaged just 80 gs., Mr. Topham bought Duke de Morny, shown at Wetherby, for 56 gs.: two made 38 gs. a-piece, and Duke of Edinburgh, a dark roan, useful animal, fetched 40 gs. from Mr. Johnson. The remaining portion of the large herd was in a field some little distance from the place of sale, and the several good lots which Mr. Fawcett has of late purchased tempted many to go and see them. A Serphina heifer and some "Sylphs" were of much promise, and with Royal Cumberland will form the nucleus of a fine herd. About eleven years since 84 head were sold from the herd at an average of £20 5s.

## SALE OF THE BEAUMONT SHORTHORNS,

BY MR. STRAFFORD.

Scarcely a sixth of the number of the Killhow company came to bid or witness the dispersion of Mr. Slye's 29 head, at Beaumont Grange; and save a few, there was but little attraction in the pedigrees among the sixteen cows and heifers, were three of the arnley Millicent family, which were all bought by Mr. John Hetherington for 95 gs. the lot, and go to form another herd, with Fourteenth Duke of Oxford, at Middle Farm, Brampton. Royal Charmer 3rd, a thick and deep seven-months-old red heifer, of the Sylph tribe, and Duchess of Lancaster, a square and straight six-months-old roan heifer, descended from Mason's No. 25, were the only two really attractive females. The first brought out some spirited bidding. Mr. Thornton, on the part of Mr. George Adkins, put her up at 25 gs., and with Mr. Willingham Fowler went along till 55 gs. were reached; at this point, Mr. Adcock, of Farnlish, and Mr. Culshaw came in against Mr. Fowler up to 100 gs., and then Lord Kenlis bid 105 gs. Mr. Fowler, however, was not to be beaten, and ultimately got the heifer at 115 gs., for Mr. George Savill, of Ingthorpe. Similar opposition took place for Duchess of Lancaster, Mr. Clayden being among the bidders; but Mr. Fowler also got this calf for Mr. Savill at 110 gs. Much difference of opinion prevailed as to the merits of the two. The Towneley and Farnley representatives were said to be for the red; but Mr. S. E. Bolden went in for the roan as being the one likely to make the better cow. The average, which had stood at 23 gs., was soon shot up to £36 16s. 4d. for the 16 females. The bulls ranged from 5 to 50 gs. each, Golden Duke selling for the highest price 50 gs., to Mr. W. T. Rothwell. Snowball, a good white calf, running down to Chas. Colling's Countess, fetched 41 gs., and the deep, thick, red Sir William Gwynne only made 46 gs. to Mr. Walker. Fawsley Baronet, a descendant of the Fawsley Fillet, could only be got up to 35 gs. to Mr. Parker after much exertion, and with his good head and capital coat seemed remarkably cheap at the price. Mr. Sturgeon bought a cow and two bull calves, to go to Essex, at 20 gs. a-piece; and Mr. R. L. Fell took a yearling bull and heifer to Cork for 42 gs.

Mr. Stafford had the most favourable weather and

ust as Mr. Slye's sale began, when a fierce storm of wind and rain arose, to the discomfiture of the company, who departed immediately the proceedings had closed.

## SALE OF MR. RICH'S SHORTHORNS, AT DIDMARTON.

BY MR. STRAFFORD.

This sale took place on October 14th, when the first half of the herd was offered, consequent on Mr. Rich leaving his farm at Didmarton. There was a very large attendance, and a very good sale; 48 cows and heifers realising £3,531 3s., and 10 young bulls £481 19s., or upwards of £4,000 for the 58 head, and nearly £70 average. The stock, which showed in very good condition, is mainly of Bates' blood, and Mr. Stafford's heart was of course in his work. The remainder of the herd will be sold in the spring of next year. The picked lots so far, it will be seen, go to Mr. Leney, in Kent; and some of the lower priced stock will, it was rumoured, go to Egypt.

### COWS AND HEIFERS.

Duchess of Beaufort, Mr. Larking .....	6s.
Semiramis, Mr. Peasey .....	34
Hollyberry, Mr. Larking .....	61
Waterloo 28th, Mr. Leney .....	37
Florentia 2nd, Mr. Larking .....	270
Ketura 3rd, Mr. Peasey .....	53
Rose of Glo'ster, Lord Fitzhardinge .....	50
Florentia 4th, Mr. Hosegood .....	37
Kirklevington 12th, Mr. Leney .....	40
Peta, Mr. Dansey .....	380
Ursula 13th, Mr. Williams .....	50
Ursula 14th, Mr. Larking .....	45
Florentia 5th, Mr. Carter .....	60
Sylvan Queen, Hon. C. W. Fitzwilliam .....	51
Wild Wave, Mr. Savage .....	52
Flora M'Ivor, Lord Kenlis .....	31
Florentia 6th, Mr. Larking .....	120
Ursula 16th, Mr. Hosegood .....	86
Florentia 7th, Mr. Downing .....	56
Ursula 16th, Mr. Butler .....	110
Elfin Queen, Mr. Edmonds .....	50
Fair Maid of York, Lord Kenlis .....	45
Yewberry, Mr. Allen .....	70
Belvoir Bell, Lord Fitzhardinge .....	45
Elderberry, Mr. Larking .....	53
Florentia 10th, Hon. C. Fitzwilliam .....	48
Enchantress, Mr. Thayer .....	130
Florentia 11th, Mr. Downing .....	66
Tyrian Belle, Mr. Roper .....	91
Florentia 14th, Mr. Roper .....	50
Ursula 23rd, Mr. Downing .....	92
Prairie Flower, Mr. C. Simmons .....	60
Star of Eve, Lord Fitzhardinge .....	36
Empress Maude, Mr. Thayer .....	71
Guelder Rose 4th, Lord St. Germans .....	40
Ursula 24th, Mr. Playne .....	55
Ursula 25th, Mr. Williams .....	71
Florentia 15th, Mr. Williams .....	46
Florentia 16th, Mr. Larking .....	75
Florentia 17th, Hon. C. Fitzwilliam .....	36
Ursula 26th, Mr. Larking .....	55
Carolina 7th, Lord Kenlis .....	27
Silver Spray, Captain Blathwayt .....	130
Florentia 19th, Mr. Downing .....	31
Ursula 28th, Mr. J. K. Fowler .....	90
Ivyberry, Captain Blathwayt .....	61
Florentia 20th, Lord Fitzhardinge .....	30
Ursula 29th, Mr. Butler .....	45
Ursula 29th, Mr. Butler .....	41

### BULLS.

Second Duke of Waterloo, Mr. Adcock .....	55
Faustulus, Mr. Larking .....	45
Duke of Monmouth, Mr. Larking .....	51
Prometheus, Mr. Hosegood .....	36
Baron Waverley, Lord Fitzhardinge .....	70
Baron of Glo'ster, Mr. Kyte .....	41
Prince Ulric, Mr. Fowle .....	30
Count Kenric, Right Hon. S. Eastcourt .....	59
Duke of Broute, Mr. Roberts .....	40
Duke of Freshwater, Marquis of Lansdowne ..	32

## THE CENTRAL SALE OF SHROPSHIRE SHEEP AT BIRMINGHAM.

BY MR. LYTHALL.

In some imitation of Mr. Preece's Shropshire sales at Shrewsbury, Mr. Lythall is establishing similar gatherings in Bingley Hall, Birmingham, where he announced another "great" day in a catalogue which included sheep from the following breeders:—Lord Wenlock, Lord Willoughby de Broke, Mr. S. Byrd, Messrs. Beach, Mr. G. Coleman, Mr. D. R. Davies, Mr. W. Dester, Mr. J. Dugdale, Mr. E. Glover, Mr. Ivens, Mr. W. Lort, Mr. E. Lythall, Mr. A. A. Morrall, Mr. T. Nock, Mr. H. Smith, Mr. E. Tongue, Mr. E. Umbers, Mr. W. Winterton, Mr. H. Wiggin, and Mr. W. Yates. In some further imitation of his great original, Mr. Lythall indulges in a certain flow of eulogistic commentary, to which, indeed, it appears the Shropshire is inevitably subjected. We learn accordingly that these sheep "possess great hardness of constitution, thriving in almost every variety of climate and on every description of soil"—that "their mutton is of excellent quality"—that "they attain a great weight at an early age, without expensive food"—and that "they carry a heavy fleece of fine quality and good staple;" while the ewes "are most prolific breeders, and well adapted for crossing purposes." Mr. Lythall goes on to speak of "the true attributes of the Shropshires, which have earned for the breed its present popular position," although any such character was not very strikingly illustrated by the animals about to come before him. One of the chief attributes of the Shropshire sheep, as tested by the specimens sent in to this sale, would be a want of uniformity. Some were great coarse useful rams with big heads and dark faces, standing all in a row, side by side, with neat trim grey-visaged Downs, and others that looked outright quite as much like Oxfordshire Downs as anything else. A glance through the several lots went to assure one that it was not a very extraordinary collection, with, if any exception were to be made, more especially in favour of Mr. Nock's thick sorty good-coated rams. Lord Willoughby de Broke also sent some roughish serviceable lengthy animals; but Lord Wenlock's flocks do but little credit to the care with which they have been cultivated. Mr. Henry Smith, again, does not shine so much with rams as with his Royal ewes and Christmas wethers; but Mrs. Beach showed some smart, well-bred, but not too highly-bred, rams; whereas Mr. Davies, of Mere Old Hall, was not in form, as his entries seemed weak and poor, though all "descended purely from prize blood." Taken generally, the rams were in pretty good condition; but some of the ewes were in a terrible state, and it was difficult to understand how they were suffered to face the public unless under force of circumstances and a stress of hard weather.

Mr. Preece, at Shrewsbury, with a punctuality that should and shall stand in the way of a good example, keeps his announced time to a minute: Mr. Lythall, at Birmingham, does, alas! nothing of the kind. The title-page of the catalogue stated that the sale would commence at eleven o'clock; and it was half-past twelve before the auctioneer entered his box. For an hour or so, previously, people were wandering about with their watches in their hands, asking each other when "it was going to begin?" so that nothing could well be flatter or tamer. As the hall is opened an hour or two earlier, there seems to be no valid reason why Mr. Lythall should not keep to his eleven o'clock time at Birmingham, if Mr. Preece and his company can be ready by ten precisely at Shrewsbury. More curiously still, in his introductory remarks, Mr. Lythall impressed upon his audience the value of time, for many, as he knew, would be leaving again by the three

or four o'clock trains, and he should certainly not waste any—having already lost one or two of the best hours in the day! When we left, at a little after two o'clock, the hall was already thinning, though not two pages in the seven of which the catalogue consisted had been then got through.

Of the rams we saw sold, Mr. Lythall's made 9, 10, 6½ over and over again, 7, 9, 8, 11 and 12; amongst the top-prices being the Wazwick prize ram of the previous day, and the average reaching to somewhere about 8 guineas. The next lot in were Mr. Yates', of Grindle, whose best price was 17 guineas, and his worst 4½; the average for twenty or twenty-one sheep being about 7½ guineas each. Mr. Nock did better with eleven rams averaging over 11 guineas, and two making eighteen guineas each. Lord Wenlock's first-prize Wetherby ram made 7½ guineas, and his twin-brother a guinea more, nine sheep reaching to an average of 6½ guineas. Lord Willoughby de Broke's dozen or so of sheep reached to about 8 guineas each, a two-shear going for 15 guineas, and a four-shear for 7 guineas. The first np of Mrs. Beach's lot made 9 guineas; and so the sale was going when we left, and with little promise of its ever coming to an end. So far it would seem that either the individual prices or averages cannot compare with the Shrewsbury Sale of the previous week.

### SALES OF SUSSEX STOCK.

During last month the herd of Sussex stock, belonging to Mr. Benjamin Noakes, of Guilbough Farm, Mayfield, were sold.

#### COWS.

Lusty, 7 years old, 33 gs., Mr. Isaac Hoadley, Wadhurst.  
 Berry, 7 years old, 32 gs., Mr. Mercer.  
 Lusty, 5 years old, 29 gs., Mr. Turvill, Hampshire.  
 Gentle, 5 years old, 29½ gs., Mr. Turvill.  
 Gentle, 5 years old, 28½ gs., Mr. Mercer.  
 Damsel, 4 years old, 29 gs., Mr. Clement Mannington, Battle.  
 Beauty, 4 years old, 31½ gs., Mr. Mercer.  
 Lusty, 3 years old, 25 gs., Mr. A. Donovan.  
 Christmas, 3 years old, 32 gs., Mr. Isaac Hoadley, Wadhurst.  
 Noble, 3 years old, 23½ gs., Mr. Mannington, Battle.  
 Strawberry, 3 years old, 37 gs., Mr. J. Hoadley, Wadhurst.  
 Beauty, 3 years old, 25 gs., Mr. J. Hoadley, Wadhurst.

#### TWO YEARS OLD HEIFERS.

Cherry, 37½ gs., Mr. John Shoosmith.  
 Gentle, 27½ gs., Mr. John Shoosmith.  
 Christmas, 26 gs., Mr. James Brooker.  
 Gentle, 22½ gs., Mr. C. Mannington.  
 Lusty, 25 gs., Mr. Hilder.  
 The splendid bull, Sultan, 3 years old, 33 gs., Mr. Turvill, Hampshire. All the cows and heifers are in-calf from this bull.

On Wednesday, Sept. 30, at Ewhurst Farm, Shermanbury, a herd of pure-bred Sussex stock, the property of Mr. W. Martin, was sold. The cows and heifers were the first sold, and two of these, Lizzie Lee, and Fanny Fern, made £48 6s. each, both purchased by Mr. Agate. Several others made over £30 each, and about twenty others made between £20 and £30 each. Calves realised from £10 upwards. There were ten yearlings, which averaged about £14 14s. The highest price, £18 18s., Myrtle, purchased by Mr. Hoasman. There were seven calves, and the highest figure was £21, knocked down to Mr. Wood. Three bulls, two of which were purchased by Mr. Stanford, one at £58 16s., and the other at £27; and the other by Mr. Turrell, at £23 12s. 6d. The stock was selected from the herds of Mr. Edward Cane, Berwick; Mr. Wm. Botting, Westmeston; Mr. Wm. Marshall, Bolney; and the Michelham herd.

**THE GORDON CASTLE SALE.**—The annual sale of pure-bred Shorthorn cattle and Leicester and Southdown

sheep, the property of the Duke of Richmond, took place at Gordon Castle Farm, Fochabers, on Friday evening. The Shorthorns comprised 14 bull-calves, and 8 cows and heifers. The Shorthorn calves were mostly a strong, promising lot, and realised fair prices. For the cows and heifers fair prices were also realised, although in neither case so high as on the previous year. The average for the 14 bull-calves was £23 1s., and for the 8 cows and heifers £21 15s. 6d. The sheep, which were next disposed of, were a remarkably fine lot, especially the Southdown ewes and gimmers, some of which brought very good prices. The average price of 100 ewes put up in lots of five, was 33s. 10d.; and the average of 75 gimmers, also sold in lots, was 35s. 8d. 58 Leicester rams, put up singly, averaged within a fraction of 82s.; 10 Southdown ewes, in lots of 5, 33s. 6d.; four do. rams, 65s.; and 10 Southdown gimmers, 30s. 6d.

**SALE AT LILLINGSTONE DAYRELL, BUCKINGHAM.**—A draught of 45 head, from Mr. Roberts' herd of Shorthorns was sold by Mr. Stratford. The 45 head realised £29 4s. each, being a total of £1,314 1s. 6d., or an average of £28 12s. for 33 cows, and £30 17 for 12 bulls. Princess Royal, heavy with calf, made 43 gs. to Mr. J. K. Fowler. Cresida, 36 gs. Queen of Spring, also 36 gs., to Mr. C. Sargood. Amy Robart was bought by Mr. J. Aubrey, Mumford, for 41 gs.; he also took Etona for 33 gs., and Prima Donna, a calf 17 gs. White Princess, a daughter of Princess Royal, 35 gs.; and her own sister, Roan Princess, was bought by Mr. F. Sartoris for 36 gs. The only "Foggathorpe," a white neat heifer, made the highest price of the day (48 gs.), purchased by Mr. Thornton. Mr. Sturgeon bought two bulls for 70 gs., and the others went from 13½ to 45 gs. each.

**THE GRENDALE HERD** was sold also by Mr. Stratford. The cows went at poor prices. Rose of Thorndale had brought 34 gs. Duchess of Oxford, a three-year-old was bought by Mr. Bleton for 32 gs.; and Nightingale, for the same price, by Mr. Brooke. The highest figure realised for bulls was obtained for 12th Duke of Oxford, purchased for 80 gs. by Mr. Sartoris. Mr. Adcock's Dunkeld sold at 53 gs. The average price for 36 cows was £23 12s. 8d.; 17 bulls averaged £34 1s. 3d.

**THE CADEBY RAMS.**—At Messrs. Briggs' sale 33 rams realised £443 2s., the average being £13 8s. 6d. The highest-priced shearing was bought for 36 gs. by Mr. Marshall, Haverstone. A ram was bought by Mr. G. Nelson for 29 gs., and a sheep of very commanding character and heavily coated was secured by Mr. Tomlinson for 23 gs.

**RAM SALES AT PARTNEY FAIR.**—The Hattoft ram (40), the property of Mr. Needham, obtained the highest average of any in the fair: one was purchased by Mr. Mayfield for £33, another by Mr. Webster for £29, and another by Mr. Cartwright for £27. The average was £11 13s. The Langton Grange sheep, the property of Mr. Harwood Mackinder (40), descended from some of the best sheep of the best flocks in the county, commanded great attention. Mr. Turner, of Ulceby Grange, obtained one for £28, Mr. Bircall one for £25 and another for £21, the Rev. W. A. Peacock one for £25, and Mr. Fieldsend one for £21. The average was £11 6s. Mr. Walesby's (24) sheep averaged £9 15s.; Mr. Grimes', of West Keal, averaged £9 5s.; Mr. Pariah's, of Toynton-house (17), averaged £8 13s. A lot of Mr. Thomas Heanley's, grass fed, sold for about £5. Altogether, the ram fair was considered very satisfactory.

**THE SALE OF THE HAUGHAM SHORTHORNS.**—Took place at Haugham last month. There was a very large gathering of shorthorn breeders. The herd was established in 1819; Laura, purchased at Wyham sale for 100 gs. being the starting point of its history. For many years it was in the hands of the present T. Cartwright, Esq. of Well, and in 1844, it was handed over to the late Mr. N. Cartwright, under whose management it remained until his death. Very good prices were realized, especially for the calves, the yearling and two-year-old heifers. No. 23, Nonpareil 5th, a heifer, was sold to Mr. J. King for 44 gs. No. 34, Lady Sit, was sold to Mr. T. Heanly for 53 gs. Her calf also made 25 gs. No. 66, Amber 3rd, also made 53 gs. No. 65, Nonpareil 9th, was bought by Mr. Thornton for 42 gs. The 7 beasts sold realized over £2,000, being an average of about £25 each.

**THE GRENDON SALE.**—Mrs. Baker's flock has attained a high reputation. On September 7, at an early hour, numerous flockmasters arrived from almost all parts of the kingdom (as the result showed), when animals were sent into no fewer than twelve different counties. Although the company was very large, there was no extravagant price realized for any lot, 18 gs. (given by Mr. Bate) being the top figure; but the trade was brisk throughout, the 36 rams and 130 ewes being disposed of in little over an hour. Three of the rams were let for the latter portion of the season only at 16, 13, and 10 guineas. The five-shear ram, "Model," from Mr. S. Byrd's flock, was purchased by Mr. Wood, at 11 gs., and Dowager Lady Hewitt, the Rev. H. Hanmer, Messrs. Ashford, Alkin, Glover, Wolferstan, Ballard, Powers, Adcock, Johnson, Summers, Lees, Beardall, Langham, Keeling, Slatter, Jones, Parsons, Carter, and Ratcliff, were purchasers of rams, at from six to 17 gs. each. The ewes sold cheaply, making from 42s. 6d. to 60s.; average, 50s. for 130. Mr. Lythall, of Birmingham, conducted the sale.

**THE AYLESBY RAM SHOW.**—The annual show of the Aylesby sheep took place upon the farmstead of Mr. W. Torr, of Aylesby Manor, on September 9, when about 60 of his pure bred Leicesters were exhibited. There was a numerous company. The result of the letting was very satisfactory to the proprietor, yielding an average of about 16 or 17 guineas. Omitting mention of two or three "fancy" prices, several lots at 30 guineas, and nothing went below 10 guineas. Of the entire flock shown, Mr. Torr reserves several for home use; amongst them "Quid," a four-shear sheep, the best at Aylesby, although a large price was offered for him by Mr. Fisher, a noted Leicester breeder, of Leckonfield. Mr. Torr also retains "Patron" (five-shear), the second-best. One was purchased for Jamaica; others have gone into Scotland and Ireland; also into Worcester, York, and various other counties. The Duke of Devonshire takes a two-shear, and two have gone into the hands of the Hon. Mr. Lascelles, of Thirak, and one to the well-known firm of Garde and Meade, of Pierrepont. "Romeo," a three-shear, has gone to Cork.

**THE BISCATHORPE RAMS.**—The annual letting of the Biscathorpe rams took place on the Aug. 27, the result being very satisfactory to Mr. Kirkham. 112 rams realised £1,752, being an average of nearly £16. The finest shearing was hired by Mr. J. Davy, of Owersby, for £76. Mr. R. Howard, of Temple Bruer, hired No. 8 for £42, and No. 36 was let to Mr. T. Heanley, of Croft, for £40. No. 56, a splendid two-shear, was let to Mr. H. Mackinder, of Langton, for £60. The best letting of the day was that of "Volunteer," an aged ram, whose previous four lettings had realised £478: he was let to Mr. Chaplin, of Tathwell, for £85. No. 86, a fine old ram, was hired by Mr. W. Lees, of Wold Newton, for £55.

**Mr. DAVY'S RAMS.**—The sale at Owersby, on Sept. 7, was attended by a large company, and 140 were disposed of at an average of £11 1s. The highest price realised was £50, which was given by Mr. Howard, of Temple Bruer; and the next highest was £32 10s., given by Mr. John Mackinder, of Hackthorn. There were buyers from all parts. Proceeds of the letting amounted to £1,535.

**THE TEMPLE BRUER RAMS.**—The annual sale of these well-known rams took place on Sept. 10, when 70 sheep were penned. The day was fine, and a large company assembled. Owing to the late dry season and the consequent difficulty of procuring feed, the sheep were scarcely in such a high condition as usual; but we are glad to learn that, considering the circumstances, good prices were realised. — *Lincoln Chronicle*.

**THE WOLD NEWTON RAMS.**—The annual sale of these well descended rams took place at Caistor, on Saturday, Sept. 12. For No. 5 there was an animated struggle. Mr. Turner, of Ulsby, secured him for £30, and No. 16 fell also to that gentleman's bid for £20. Mr. Hudson took No. 20 at £12 10s., and No. 12 for £9 10s. No. 13 went to Mr. Empson for £12 10s., and No. 22 to Mr. Dixon for £12 10s.; and the general average reached nearly £10 per head.

**MESSRS. DUDDING'S SALE AT PANTON** took place on Sept. 8. There were 56 sheep offered. Shearlings came first: Four let at £14, £18, £20, and £22 respectively; Mr. Broadhurst, of Nottinghamshire, bought several, the prices of three being respectively £27, £21, and £25; Mr.

R. Wright, of Nocton, bought one at £22. The two-shear sheep made good prices: Mr. Kemp hired the first, at £31; Mr. Thomas Kirkham, of Biscathorpe, the second, at £40; Mr. Pilby bought the third, at £23 10s.; and Mr. Abrahams hired the fourth, and last, at £46. The average of the whole, taking the sold and let together, was £15 14s.

**MR. WILLIAM CHAPLIN'S SALE AT TATHWELL, LOUTH.**—Although the Tathwell flock was dispersed three or four years ago, subsequently to the death of its late proprietor, enough have returned to, and increased at, Tathwell to present a highly respectable and promising flock, as the following prices will indicate: Mr. Walsh, of Ireland, bought two at 38s. each, and one at 27s. each; Mr. Marshall, Branstone, two at 26s., and one at 19s.; Mr. Rinder, two at 16s.; Mr. Paddison, one at 20s.; and Mr. Caswell, one at 46s. The 48 sheep realised 603s., or an average of about 12s. 10s. each.

**THE LAUGHTON RAMS.**—Mr. John Henry Casswell has fairly attained a first position as a ram breeder. This flock on Saturday evening were let as follows: One to Mr. Dean of Dowsby at £60, one to Mr. Lynn of Stroxtou at £22, and one to Mr. G. Casswell of Harpewell at £30. Among the 52 sheep sold the following prices were given: By Mr. Wallace £24, Mr. Looker of Huntingdonshire £38, Mr. Dudding of Pantou £22, Mr. Tirrill of Eggleston £37, Mr. Simmonds £33, Mr. Watts £21, Mr. Byron £21, Mr. Boyer £23, Mr. Dean of Dowsby £30, Mr. Dalton £21, Mr. Ward £30, and by Mr. Spafford of Boothby, for a three-shear, £27. The average of the 52 rams sold was £16 6s. 7d., and of the three let £37 6s. 8d. The sum total of the whole was £969 10s., which gives an average for the 55 of a trifle over £17 12s. 6d., and as 25 per cent. is considered to be the difference between letting and selling a sheep, if the whole of the 55 had been sold they would have realised the great average of £18 each. Three were let for the season for £112.

**THE POINTON RAMS.**—Mr. Tom Casswell's flock gives the great averages of above £16 14s. each. Some of the prices at which they were bought are the following: By Mr. Broomwich at 18 gs., Mr. Simpkins of Halston at 35 gs., Mr. W. Gilliat of Ashby at 21 gs., Mr. W. Goodlife of Carrington-lane, Huntingdon, at 22 gs., Mr. Rayment at 21 gs., Mr. Mann of Rockland, Attleborough, at 50 gs., Mr. J. Seales of Graby at 22 gs., Mr. Norman at 28 gs., Mr. Rooke at 20 gs., Mr. Pagon of Anwick, Sleaford, 36 gs., and by Mr. Sneath at 20 gs. These sheep were sold by Messrs. Mason and Son of Louth.

**THE ASHBY RAMS.**—Mr. C. Clarke's rams were 50 in number, the average being something over 10 gs. each. Mr. Brereton bought one at 22½ gs., Mr. Wilders one at 15 gs., Mr. Holland one at 21 gs., Mr. Mann one at 23 gs., Mr. Grummett one at 12 gs., Mr. Aggreton one at 13 gs., Mr. Walker one at 18 gs., Mr. Sampey one at 11 gs., Mr. Pickworth one at 14 gs., Mr. Wilders one at 15 gs., and Mr. Rogers one at 14 gs. Of other sheep, one of Mr. Cartwright's of Dunston Pillar, a very fine shearing, was sold to Mr. Marshall of Branstou at 35 gs.; Mr. Graves of Bloxholme made £16 10s., £11, £10, down to £6 10s., the average being about £8.

**MR. MASFEN'S SALE OF SHROPSHIRE RAMS AND SHEEP AT PENDEFORD.**—On September 7, Mr. R. H. Masfen, whose name, like that of his father, is well known as a breeder of this increasingly popular description of sheep, held his annual sale of rams and ewes, on his farm at Pendeford, near Wolverhampton, the event attracting an influential and very numerous company, comprising many of the most celebrated sheep breeders of Staffordshire, Shropshire, and adjoining counties. The biddings were very brisk, and in several instances offers were made before the auctioneer had made his descriptive and commendatory remarks. The following is a list of the rams and prices: Shearlings—Standard Bearer (let) 21 gs., Dandy 20 gs., Premier 20 gs., Commonwealth, by Turpin, dam by Competition, let to Lord Sadeley, for 18 gs. for the season; the Sprite, sire Corsair, dam by Brother to Gratitude, let to Mr. F. Byrd for 13 gs., Lord Napier (sold) 12 gs.; Iron Duke, by Pride of Pendeford, dam by Mainstay, 30 gs. (Mr. Cheate); Ironmaster 16 gs., Cannon Ball 14 gs., Merry Andrew 14 gs.; Lord of the Manor, by Turpin, dam by Gratitude's Brother (a prize ewe), 46 gs. (Mr. Hardy); The Peer 13 gs., Patrician 12 gs., Pirate 16 gs.;

Theodore, by Young Duke, dam by Maccaroni, 34 gs. (Mr. German, Meesham Lodge); Rob Roy 13 gs.; Blue Gown, by Turpin, dam by Mainstay, 27 gs. (Mr. Gnosall, Hindlip); Red Rover 18 gs.; Coxswain 20 gs.; Outlaw 12 gs.; Yeoman, sire Corinthian, dam by Mainstay, 30 gs. (Mr. Wardle, Burton); Jack Tar 10 gs.; Prince of Pendeford 20 gs.; Hotapur 14 gs.; Diamond 13 gs.; Dick Turpin 23 gs. (Mr. Robins); Bonne Bouche 10 gs.; Sampson 10 gs.; Captain 11 gs.; Touchstone 11 gs.; Ranger 10 gs.; Rambler 12 gs.; Bounce 12 gs.; Early Bird 10 gs.; Rival 10 gs.; Attraction 11 gs.; The Brick 10 gs.; Crusader 9 gs.; Magnum 11 gs.; Juggler 9 gs.; Forester 10 gs.; Ugly Buck 12 gs.; Two Shears—Crystal 13 gs.; Milton 20 gs. (Mr. Keeling); Mayfly 10 gs.; Ploughboy 8 gs.; Burke 8 gs.; Three Shears—Lord Caines 14 gs.; Young Duke 20 gs. (Mr. Bowen); Triplet 10 gs.; Sweet William 8 gs. The average price of the 42 shearing rams sold and the three rams let was £16 13s. 2½d., and of the nine older sheep £13 0s. 2d.; average of the whole 51, £16 4s. 4½d. each. The stock ewes were afterwards very rapidly sold, the highest price realised being 75s., and the average of the 100, 57s. 9d. each.

**RAM SALE AT KELSEO.**—The assemblage was large, including proprietors and flock-masters from the neighbouring Border counties, and from more distant parts of the United Kingdom. There were in all sixty-one lots—fifty-two of Leicesters, and nine of half-breds. The biddings were not so spirited as last year, and the averages in the majority of instances were lower, the depreciation in the price of sheep no doubt being the cause of the dull sale and smaller prices. Among those who purchased were Mr. Goodiet, one at £62; Mr. Foster, Ellingham, one at £40; Mr. Harris, Earnhill, Morayshire, one at £31; Mr. Laing, Burton, one at £20; Mr. Laing, Cornhill, one at £21; Mr. Nisbet, Lambden, one at £24; Mr. Lang, £22; Messrs. Swan, Edinburgh, £22; Mr. Lumsden, Mousden, £22. Among Mr. Bell's (Linton) lot, Mr. Howie got £26; Mr. Ford, Hardengreen, £21. Lord Polwarth's lot also excited much interest, the biddings being very spirited, and the sale a good one. Among those who purchased the highest priced sheep were the following:—The Marquis of Tweeddale bought the highest priced ram, sold at £86; Mr. Hardie, Harrietfield, one at £51; Mr. Dean's, Dalkeith, and Mr. Simson, Courthill, rams at £50 each; Mr. Usher, Stodrig, one at £70; Lord Penrhyn, Penrhyn Castle, Wales, bought one at £26; Mr. Wilson, Haymount, one at £33; Mr. Simson, Courthill, one at £28; Mr. Brunton, Eastfield, one at £24; Mr. Robeson, Springwells, one at £20. Twenty-four gimmers belonging to R. K. Elliot, Esq., of Clinton, and bred by Mr. Purves, Linton Burnfoot, were sold in the morning, and brought an average of £2 5s.—the highest £2 7s. 6d., and the lowest £2 2s. 6d. In Mr. Ord's lot of half-breds, the oighest price was £4 7s. 6d. Mr. Elliot's (Galalaw) highest price was £6 15s.

The annual sale of Shropshire sheep at Packington was conducted this year by Mr. H. Stafford, whose services were secured in consequence of a portion of the shorthorn herd being included in the catalogue; but these were only a draft of unfashionably-bred animals, and attracted very few buyers beyond those in the immediate vicinity. The cows changed hands at prices very little, if anything, over their value in the open market. The highest-priced cow was "Britannia," 27 gs., purchased by Mr. S. Burchnell, Catton; and a three-year-old heifer, "Rosamond," was secured by Mr. Butler at the same figure, the average of the females being £18 11s. 4d. The bulls went rather higher; one, by "Grand Duke Ninth," going to Mr. J. P. Evans, at 45 gs., which sum Mr. Sturgeon gave for "Bridegroom." Mr. Newdegate purchased "Allius," at 40 gs.; one or two yearlings were cheap to kill, making but 15 or 16 gs., the average price for eleven, including two three-weeks' old calves, being £24 7s. 9d., bringing the general average of the sale up to £20 5s. 1d. The Shropshire rams included two or three useful old sheep, one of which, a four-shear, made only 5 gs.; Mrs. Baker took one at 6 gs.; and the gem of the flock was secured by Mr. E. Lythall, of Radford, at 27 gs. The highest-priced shearing went at 17 gs., and others at 16, 13½, 13, 12½, down to five guineas. The ewes were low in condition, but sold well, making from 36s. to 71s., averaging about 44s.

**RAM SALES AT GLOUCESTER FAIR.**—Rams from the flocks of several Cotswold and other sheepbreeders were sold by Mr. James Villar. The competition was good, and the sale was one of the best Mr. Villar has

ever held at Barton Fair. The sales actually made were—11 Cotswolds, from Mr. J. Garne, Wilkins, at an average of £5 15s.; 3 from Mr. E. Handy, Sierford, average £9 16s.; 8 from Mr. W. Hower, Northleach, average £8 10s.; 7 from Mr. T. Porter, Baunton, average £5 15s. 6d.; 2 from W. Hitchcock, Esq., Miserden, average £7 2s.; 7 from Mr. Limbrick, Horton, average £6 7s. 6d.; 11 from Mr. James Humphries, Hawling, average £4 12s.; 5 from Mr. T. B. Browne, Salperton, average £6 2s.; 3 from Mr. Cripps, Coleborne, average £4 11s.; also 11 Oxford Downs, from Mr. C. Hobbs, Maiseyhampton, average £9 12s.; 5 Oxford from Mr. G. Wallis, Old Shefford, average £13; 6 Shropshires from Lord Sudeley, Toddington, average £8 15s.; 1 Down from Captain de Winton, £4 10s. and 1 from Mr. W. S. Davis, £3 15s.

**RAM SALES AT WORCESTER FAIR.**—15 Shropshire Down rams, the property of Mr. Robert Berkeley, sold at from £6 6s. to £23 2s. 7 pure-bred Shropshire rams, the property of Mr. Henry Allsop, of Hindlip-hall, sold at prices ranging from £5 16s. 6d. to 9 gs. 12 shearing Leicester rams, the property of Mr. N. Cotterell, from £2 12s. 6d. to £3. Leicester rams, the property of Mr. J. V. Hornoyd, of Blackmore-park, at from 4 to 9 gs. Leicester rams, the property of Mr. T. G. Curtler, at an average of 33s. 6d. Leicester rams, the property of Mr. H. Lingen, of Lincombe, at about 35s. 15 shearing Cotswold rams, the property of Mr. John Garne, of Northleach (only a few of these found purchasers), at £5 15s. 6d. each. 20 Leicester rams, the property of Mr. Joseph Lett, of Scampton, York, realized prices varying from 5 gs. to 9 gs., average £6 16s. 6d. 12 Oxford rams, the property of and bred by Mr. Charles Gillett, of Cotehouse, Bampton, made an average of £10 each, the highest being 16 gs., lowest £6 16s. 6d. 15 Cotswold rams, the property of Mr. John Gillett, of Oaklands, made 7 gs. each. 13 capital rams of the Oxford Down cross made an average of £6 10s. 4d. each. 6 grey-faced Cotswolds, the property of Mr. Byrd, of Aldington, made 6 gs. Of 8 Shropshire shearing rams, the property of Mr. C. Randall, from the Chadburyfold, the highest prices obtained 17 gs. and the lowest 8½ guineas, the average being a little over £13. 8 superior shearing Lincoln rams and two older rams, the property of Mr. Eastland, Aconbury Court, Hereford, at prices ranging from £5 10s. to 13 gs. each. 15 shearing Lincoln rams, belonging to Mr. J. R. Pearmore, of Dinedor, Hereford, from £3 7s. 6d. to £3 5s.; and 10 prime cross-bred Lincoln and Cotswold shearings, the property of Mr. Kempson, Dinedor Court, Hereford, realised from £3 2s. 6d. to 5 gs. each. 10 Cotswold rams, the property of Mr. G. Fletcher, of Shipton, Andoversford, realised from 5½ to 6 gs., the average being £6. 15 Cotswold grey rams, belonging to Mr. W. Smith, Bibury, Fairford, an average of 6 gs., the highest fetching 7½ gs. and the lowest 5½ gs. 10 Cotswold rams, the property of Mr. E. Andoversford, from 5½ to 6½ gs., the average being about 6 gs., and 10 Oxford Down rams, belonging to Mr. G. Wallis, Old Shifford, Bampton, realised 7 to 14½ gs., £9 2s. being the average.

**MR. R. SMITH'S EXMOOR PONIES.**—The eighteenth annual sale of these ponies, cobs, and galloways took place at the Bristol Repository on Wednesday last. The following were the best prices of nearly forty lots:—Maggie, by Y. Port (Mr. Nash), 25½ gs.; Hippo, by Hippocastiana (Mr. Gering), 41 gs.; King of the Cobs, by King of the West (Mr. Wilshire), 60 gs.; Punch Bowl, by Young Port (Mr. Keene), 33 gs.; Crusader, by Epinician (Dr. Fisk), 30 gs.; King of the West, by King of the West (Mr. Gilling), 38 gs.; Lady Mary, by Sea King (Mr. Smelt), 31 gs.; Lady Floreuce, by Epinician (Mr. Thomas), 26 gs.; Forest King, by Nutshell (Mr. Leigh), 33 gs.; Madcap, by Swalcliffe (Mr. Bailwood), 31½ gs.; Windsor, by Swalcliffe (Mr. Wilshire), 26 gs.; Neptune (Mr. Leigh), 24½ gs.; Satanella, by Kidnapper (Mr. Osborne), 23½ gs.; Homebush, by Young Bowstring (Mr. Redgrave), 52 gs.; Surveyor, by Silverlocks (Mr. Thompson), 20 gs.; Queen Bee, by Nutshell (Mr. Sloman), 26 gs.; Vandine, by Frederic (Mr. Bawtre), 35 gs.; Sambo, by Nutshell (Mr. Cheffins), 43 gs.; Moselle, by The Gem (Mr. Gardener), 25 gs.; Farleigh (Mr. Pennall), 23½; Cobnut, by Nutshell (Mr. Smith), 22 gs.; Roan Robin, by Nutshell (Colonel Lutterell), 45 gs. The others sold some at under 20 gs., and others under 10 gs. each. There was a very large attendance, and the sale may be considered on the whole a good one.

## BALLYWALTER SHORTHORNS.

Twenty-three bull calves and four two-years-old heifers were sold by auction, by Marsh and Son, of Cork, at Ballywalter. The following was the result:—

BULL CALVES GOT BY SIR JAMES (16,980).		gs.
Elfin Duke, red, calved Dec. 27, 1867 (Mr. Annesley).....	15	
Paymaster, roan, calved January 23, 1868 (Mr. O'Regan).....	31	
Old Joe, red, calved Jan. 29, 1868 (Mr. Hartigan).....	16	
Perfection, roan, calved February 2, 1868 (Mr. O'Grady)....	38	
Valiant, white, calved February 2, 1868 (Mr. Flynn).....	14	
Royal Knight, roan, calved Feb. 11, 1868 (Mr. J.N. Beamish)...	63	
Daylight, roan, calved Feb. 18, 1868 (Mr. Mosse).....	20	
Woodranger, red and white, calved April 6 (Mr. O'Donnell)...	15	
Envoy, rich roan, calved April 9, 1868 (Mr. Briscoe).....	19	
True Knight, red, calved April 9, 1868 (Mr. Harrold).....	23	
Sir Arthur, white, calved April 28, 1868 (Mr. S. Hawkes)...	13	
Lord Advocate, red and white, calved April 28, 1868 (Mr. W. Hungerford).....	31	
Solicitor, red and white, calved May 4, 1868 (Mr. Hunt)....	9	
Freeman, roan, calved April 24, 1868 (Mr. Donegan).....	26	
BULL CALVES GOT BY UNCLE NED (19,026).		
Fisherman, red, calved January 17, 1868 (Mr. Hickey).....	16	
Sweet William, roan, calved Jan. 21, 1868 (Mr. Hurley).....	16	
Paragon, red & white, calved Jan. 30, 1868 (Mr. Campbell)...	36	
Skyrocket, red, calved Feb. 19, 1868 (Mr. Murnane).....	18	
Felix, red, calved March 5, 1868 (Mr. Ahern).....	18	
Knight of the Shire, red, calved March 6, 1868 (Sir G. Colthurst).....	40	
Othello, red and white, calved Mar. 19, 1868 (Mr. Bolster)...	13	
His Lordship, red, calved April 3, 1868 (Mr. Forrest).....	20	
Orator, red and white, calved June 29, 1868 (Mr. Buckley)...	7	

## HEIFERS.

Olivia 8th, roan, calved Sept. 21, 1865; to calve 6th April, 1869 (Mr. Massey).....	27
Sophy 9th, roan, calved Feb. 27, 1866; to calve 14th Mar., 1869 (Mr. Clancy).....	32
Sophy 10th, red, calved April 17th, 1868, not in calf (Mr. Furney).....	26
Frances 6th, red, calved April 19th, 1866; to calve 11th May, 1869 (Mr. Barry).....	23
The fourteen bull calves, got by Sir James (bred by Mr. Booth, of Warlaby), produced £349 13s., or an average of £24 19s. 6d.; the other nine, got by Uncle Ned (bred by Mr. Welsted), produced £198 9s., or an average of £22 1s. The four heifers made an average of £28 7s.	

**SALE OF SHORTHORNS.**—Mr. Nathaniel Reid, Danestown, exposed for sale his entire herd of Shorthorns, with the exception only of a few two-year-old heifers, on Thursday. The young bulls were first offered, and brought an average of 25 guineas nearly. The heifer calves realised an average of 17 guineas; the one-year-old heifer calves brought on an average 21½ guineas; and 4 two-year-old heifers 26 guineas on an average.

**SHORTHORN SALES.**—Mr. Dugdale's young shorthorn bull Duke of Brunswick, a prize winner, has been purchased for exportation to Australia. He is consigned to Mr. R. C. Morton of Mount Derrimut, Victoria, whose herd of 70 head was sold in the colony last November for over £5,000, at an average of about £75. Two yearling heifers and a roan bull calf have been recently sold to Mr. E. Ratcliffe of Walton Hall, Burton-on-Trent, from the Yardley herd; they are all three by Knightley bulls, from dams descended from the Foggathorpe tribe. Messrs. Downing and Harward bought from Capt. Gunter some time back, Third Duke of Claro (23729), and hired Fifth Duke of Wharfedale. They have now made the purchase of half-a-dozen young heifers of Kirklevington blood from Mr. Harvey, Walton-on-the-Hill. Col. Kingscote's Duke of Hazle-cote, having three Bates' crosses upon the Honey tribe, has been purchased with five heifers from Mr. Thompson, of Badminton, by Mr. Camm, for the Speaker's estate at Ossington, Newark.

The annual sale of the Ulceby Grange rams was held on the 7th Sept. Seventy sheep were penned, and only five passed through the ring unsold. Satisfactory prices were realised; one fine animal was sold for £36, and seven for £20 and upwards. The whole averaged £10 14s. 6d. each.

## LUDLOW AGRICULTURAL SOCIETY.

After an interval of two years, the shows of this society have been resumed; but the meeting this year was by no means equal to those of former years. In many of the classes there were not more than two exhibitors, and in not a few only one. The bull by which Mr. Rogers secured the twenty pound prize in the sweepstakes was a good animal, thick and full of flesh, without being over fat. The bull and offspring shown by Mr. Thomas Rogers were also good, and the bull calves shown by Mr. Tudge and Mr. John Rawlings were the best class in the yard. The class of heifers was good, as also were the cows with calves, and the fat cows, especially the one shown by Mr. Ridgley. In sheep the Shropshires, as usual stood pre-eminent, Mr. Henry Smith, of Sutton Maddock, standing first with his rams and yearling ewes, and Mr. Hand also showed well to the front. Of pigs there were only four pens. The horses were the best class of any as regards numbers, and among them were some very good and useful animals, but nothing particularly gaudy. There was a large entry of implements shown by Mrs. Jessie Cooper, Ludlow, Mr. Black, Ludlow, and Mr. Corbett, Shrewsbury.

The judges were—for stock: Mr. W. Taylor, Thingehill Court, and Mr. Corfield, Greete; for horses: Mr. Vaughan, the Moor, Welshpool, and Mr. Bryan Davis, Newtown.

## PRIZE LIST.

## CATTLE.

Sweepstakes of 2 sovs. each, with 20 sovs. added, for the best stock bull, of any breed, open to all England. The owner of the second to receive 4 sovs. out of the stakes, and the third 2 sovs.—1st, Mr. Thomas Rogers, Coxall; 2nd, Mr. John Williams; 3rd, Mr. Aaron Rogers.

Bull, of any age, and four of his offspring, under one year and three months old, bred by one person that has used the bull.—£5, T. Rogers.

Bull, under fifteen months old, bred by and the property of the exhibitor.—First prize, £5, William Tudge; second, £2 10s., J. Rawlings, Stoke; third, £1, J. Rawlings.

Four steers, under two years and three months old.—First prize, £5, W. Tudge; second, £2 10s., T. Farmer.

Pair of steers, under two years and three months old.—£5, W. Tudge.

Four heifers, under two years and three months old.—First prize, £5, T. Rogers; second, £2 10s., R. Tanner.

Pair of heifers, under two years and three months old.—£5, T. Rogers.

Four steer calves, under fifteen months old.—£5, T. Rogers.

Four heifer calves, under fifteen months old.—£5, W. Tudge.

Four breeding cows, with their calves.—First prize, £5, T. Rogers; second best four, £2 10s., R. Tanner.

Fat cow or heifer.—First prize, £5, H. Ridgley; second, £2 10s., R. Hill, Orleton.

## SHEEP.

Yearling ram.—First prize, £5, H. Smith, Sutton Maddock; second, £2 10s., F. Bach, Onibury.

Ram, more than two years old.—First prize, £5, H. Smith; second, £2 10s., C. Blakeway.

Ten breeding ewes, two years old and upwards, to have produced and reared lamb up to the 2nd of May, 1868.—First prize, £5, J. Hand, Ludlow; second, £2 10s., F. Bach.

Ten yearling ewes.—First prize, £5, J. Hand; second, £2 10s., H. Smith.

Ten fat yearling wethers.—£5 James Hand.

Ten wether lambs.—First prize £5, R. Edwards, Ludlow; second, £2 10s., R. Tanner.

Ten ewe lambs.—First prize, £5, R. Tanner; second, £2 10s., R. Edwards.

## PIGS.

Boar, under two years old.—First prize, £2, J. Price; second, £1, J. Trench.

## HORSES.

Nag mare and foal at foot at least six months.—First prize, £5, J. Hand; second, £2 10s., T. Griffiths.

Cart mare and foal at foot.—First prize, £5, R. Coston, Hayton; second, £2 10s., T. Griffiths.

Nag gelding or mare, for a hunter and the road, under five years old.—First prize, £5, J. Hand; second, £2 10s., J. Trench.

Two-year-old cart gelding or filly.—First prize, £5, T. Rogers; second, £2 10s., H. Lippett.



## EXTRA STOCK.

R. Edwards (fifty store ewes) £1; R. Baah (ten three-year-old wethers), 30s.; R. Shirley (bull), 10s.; J. Rawlings (bull calf) £1; J. Rawlings (five ram lambs), 10s.; T. Coston (nag horse), 10s.

## IMPLEMENTS.

For the best assortment of agricultural implements.—£5, Mrs. Jessie Cooper, Ludlow.

## THE NEW SMITHFIELD MARKET.

On October 15 the Lord Mayor and Corporation of London, accompanied by Sir John Thwaites, Chairman of the Metropolitan Board of Works, went from Guildhall to inspect the new Meat and Poultry Market in Smithfield, which is being erected under the auspices of the Corporation and at their cost, and which is now so far advanced towards completion that arrangements are being made for opening it for public use in the middle of the ensuing month of November. It will certainly be in full working order, from all accounts, by Christmas.

The site on which the new market has been erected is considered by the Corporation to be the most central in London. Below, and communicating with the building, is a spacious and central depot in connexion with several converging lines of railway, where meat and poultry can be brought from any part of the kingdom and raised by hydraulic agency directly into the market and in the trucks in which they are conveyed. This convenient arrangement of the market over the railway depot has been necessarily difficult and costly in construction, and is understood to have affected the design of the market to a great extent. The excavation under the market site alone, exclusive of the vaulting around, required the removal of 3,500,000 cubic feet of earth, weighing about 172,000 tons. This was necessarily a work of time, and some impatience was expressed by many who were unaware of the huge preparations necessary before the market building could be commenced. The roof of the railway depot forming the floor of the market had then to be made. Some idea may be formed of the extent of these works when it is stated that nearly five miles of girders are employed, carried on 180 columns, and that 3,000 tons of wrought-iron are used to support the floor of the market. As soon as a portion of the floor was sufficiently advanced to permit it, the erection of the market was begun. The foundation stone at the south-east angle having been laid on the 5th of June, 1867. Since that time the building has been carried on with remarkable energy by the contractors, Messrs. Brown and Robinson. The area of this building is a parallelogram, 631 feet by 246 feet, and extends over about 3½ acres. The style of the architecture is that generally expressed by the term Italian. The prevailing feature is a series of arched recesses between Doric pilasters, fluted in the upper parts and elevated on pedestals. The entablature is ornamental over the pilasters, and has vase-like terminations, recurring at regular distances throughout the length of the building. The general height of the external wall is 32 feet, and the lower parts of the recesses between the Portland stone pilasters are built in red brickwork, which adds to the pleasing appearance of the whole. The semi-circular heads of the arches above are filled with iron scroll-work, so ample in design as to occupy the space, and yet leave room for the admission of air and light. The keystones of the arches are richly carved, those especially over the side entrances. The chief points of architectural effect are the fronts of the public roadway which passes through the market. The roadway is 50 feet wide, and its sides are shut off from the market by an elaborate screen of open ironwork, 14 feet high, while at the intersection with the central avenue which runs east and west the market is closed by gates of ornamental ironwork. Towards the north end of the roadway access is obtained by a double staircase to the railway depot below; near this the post and telegraph offices and market officers' rooms are placed, and four lofty and ornamental towers mark the angles. The gates at the east and west ends are of elaborate design and great size. Although as light in construction as is consistent with strength they weigh 15 tons each, and each of them is 20 feet high by 19 feet wide. The twelve side entrances, six on the north and six on the south fronts, are also of considerable size and similar in design.

The interior of the market has been of necessity even more

subservient to the purposes of the building than the exterior. One of the leading features in the arrangements is that for securing light without sunshine, and free ventilation without exposure to rain. During the excessive heat of last summer the effect was tested by thermometers placed in various parts of the building, and the result found to be highly satisfactory, the interior never being less than ten degrees cooler than the shade outside. The importance of this in a meat-market will be apparent, but it has disadvantages, and these furnished the theme of some comment on Thursday. The upper parts of the roof all over the building are of wood, and communicate with other portions of the fabric, which are also of wood. In the event of fire it would probably spread with terrific rapidity through the building. The wooden portions of the roof have also the effect of throwing the avenues somewhat into the shade. The shops are arranged on each side of the side avenues which cross the market from north to south, and intersect the central avenue. The latter is 27 feet wide, and the six side avenues 18 feet wide each. There are 162 shops, 36 feet by 15 feet. At the western end space is reserved for dealers in poultry and game, but no fish or vegetables will be sold in this market. The backs of the shops are closed in, but at the sides are screened by light iron-work, to insure ventilation. The floor of the market is paved with wood blocks. Twelve hydrants, always at high pressure, will supply ample means of washing out the market avenues and stalls, and could be used in case of fire.

## ROYAL AGRICULTURAL SOCIETY OF IRELAND.

## JUDGES' REPORT ON DRAINAGE.

SIR,—We beg to forward you, for the information of the council, our report on the several lots of drainage, which we were deputed to inspect, for the purpose of awarding the several prizes offered by the society; and, at starting, we beg to observe, that all the work we inspected was done in a careful and workmanlike manner—that in all cases the outlets were well secured, and the main outfalls well cleaned up, and due precautions taken to make the works permanent; so that in the following remarks it must be understood that this was a competitive examination, and when the main features of all were done in a creditable manner, the award of the judges must turn on some portion of the details. The first drainage we inspected was the lots entered for competition by the Honourable King Harman. The fault we found with this drainage was an unnecessary number of outlets for the discharge of the water by the covered submains into the open mains. Now, as the permanence of each section of drainage depends on these outfalls being kept clean, the unnecessary multiplication of them is a serious error, entailing much and constant watching, particularly when discharged into ditches, liable to have their banks broken down by cattle sliding down into them, more especially when the discharge is in the low side of the ditch. In the drainage of Keel, which was the largest section of Mr. K. Harman's drainage, there were some outlets badly placed, which might, we think, have been avoided. The drainage on this property is only 40 inches to 43 inches deep, and 30 feet apart. The distance apart is well chosen, but the depth might have been increased, we think, with advantage. The other portions of this drainage are the same depth, but 40 feet apart. Taking into consideration the nature of the soil, we think the width apart well chosen, but regret that increased depth was not given.

The next drainage we inspected was Mr. Cosby's. Here the drainage was well laid out, so as to give each drain its fair share of work to do, which the lie of the ground, by its great variation, made troublesome. The great fault we had to find with the work here was, that the cutting of the open main drain was not well laid out, not so much in its direction, as that there did not appear to have been a proper plan and working section made before the work was begun, so as to ensure a proper and well-defined slope to the bank. The bottom was in all cases too wide, and the banks too straight. The outfalls might have been fewer, with advantage to the permanence of the drainage, and the grates to the covered sub-main were rather slight. The depth of the drains was fairly kept, but, if anything, it was rather under than over

the depth of 4 feet. On Knockleag it was only 3½ feet, which is a depth, we think, which might have been judiciously increased. Broken stones were used in these works, and also in those of Mr. King Harman's; and we are of opinion that where stones alone are used, the minor drains should never be a less depth than 4 feet, as in all drainage there must be more or less silting.

The next drainage we inspected was Lord Digby's, and it certainly was most efficient. The care shown in the cutting of the open mains will add much to the permanence of this work. The townland of Ballyknockan, where seventy of the eighty acres entered for competition lie, is almost flat, so that to obtain the necessary outfall, these open mains have to be cut to a very considerable depth; and if they had not been laid out at first with a clear view of the object to be attained, the slopes and after expenses would have been very serious, and the proprietor would have had no certainty of the efficiency or permanence of his works. We examined miles of them open. We saw, in our drive through the estate, some cut for a considerable period, and all in perfect working order. The safety of the outfalls has been strictly attended to; for in the whole seventy acres there are only two, which are utilised as watering places for cattle, and are built in such a way as to make their damage impossible. There has been some controversy as to the propriety of using stones and tiles in the same drains here. Twelve inches of stones, and less would not do, is dearer than 5 inches of stones and 1½ inch pipe, and certainly not more permanent.

As we considered that, on the whole, Mr. Cosby's drainage was superior to Mr. K. Harman's, we will proceed, before making our award, to institute a comparison between Mr. Cosby's and Lord Digby's; and first as to price: taking Mr. Cosby's, which varies from 4 feet to 3 feet 6 inches in depth, and from 30 feet to 40 and 45 feet apart, it averages £5 17s. 4d. per acre. Now Lord Digby's for 70 acres, excluding Killom, is £6 13s., or only 16s. 8d. per acre more than Mr. Cosby's, although the minor drains are fully 4 feet deep (the depth being more strictly attended to than on the other works we inspected), and only 30 feet apart, a closeness of distance apart rendered necessary by the nature of the ground. We therefore think that, considering the nature of the land and the disadvantages it laboured under, as compared with the others, the work on Lord Digby's property has been as economically done as Mr. Cosby's.

Looking at all the circumstances, if we are not coerced by the terms of the articles to give the prize to the greatest amount, we should feel inclined to award the prize to Lord Digby; but if on the contrary, we are bound by the greatest quantity, we are bound to say that Mr. Cosby's drainage has great merit, and we have no hesitation in saying that it is a most creditable work, and well deserves the prize which it will gain.

We would beg to call attention to Mr. Trench's plough for cutting drains, which, in a soil so free from stones as the Boharaha drainage is, must be a most valuable implement, and save a great deal of money in labour. In conclusion, we cannot help remarking the great pleasure it gave us to see so much good drainage work doing; it was all well executed, and any lot would have, in our judgment, well merited a prize.

B. C. WADE.

JOHN FREDERICK MEEKINGS.

J. M. ROYSE.

September 22nd, 1868.

To J. B. Thornhill, Esq., Secretary,  
Royal Agricultural Society.

## PRESENTATION OF THE BRERETON TESTIMONIAL.

The Rev. Prebendary Brereton, who for several years was incumbent of West Buckland, near Barnstaple, where his labours in connexion with the establishment of the Devon County School, at that place, are familiar to friends of the middle-class education movement throughout the country, having become rector of Massingham, Norfolk, it was determined that he should not be allowed to leave North Devon without some substantial token of the esteem in which he is

held by all classes of the community. A subscription soon produced the sum of three hundred guineas, and it was decided that the testimonial should assume the form of portraits of Mr. Brereton and his wife. The commission was given to Mr. George Richmond, R.A., who has discharged it in the most satisfactory manner, producing not only faithful likenesses, but genuine works of art. The presentation took place on Friday afternoon (at a public dinner in Barnstaple), by Earl Fortescue. The attendance was large, and included men of all ranks and interests. We briefly noticed this meeting last week, but here give a further report.

The CHAIRMAN in presenting the pictures said: In trying to take as it were a judicial view of his claims to this signal mark of esteem and regard from his friends and former neighbours in North Devon, I think we should consider his services in three points of view, and I do not ascribe this tribute to any one of them exclusively. In the first place, I think we may ascribe it in part to the services he has rendered to the middle-classes not only of this county, but I venture to say (on the authority of the Bishop of Ely and others) of the country at large, by the tact, energy, foresight, and public-spirited devotion by which he, beginning at first with a school of three boys, under the present admirable head master, in a farm house, has enabled us to witness such a scene as several of us had the pleasure of seeing yesterday—something like a hundred boys of whom more than one-third obtained honours, or at least certificates from the Universities of Oxford and Cambridge—in a building which, though not absurdly magnificent, is most seemingly and appropriate and thoroughly well provided, both with regard to comfort and to sanitary arrangements. The next point of view in which we may regard him is as one who has deservedly obtained the confidence of the farmers of North Devon by the zealous, disinterested, and intelligent manner in which he has laboured to promote their interests. His labours for the establishment of the wool fair; the active part he took in promoting the establishment, and keeping up the spirit after it had been established, of the Barnstaple Farmers' Club; the ready assistance he has given on more than one occasion to the Bideford Farmers' Club; the sympathy shown in our movement for the establishment of the Devonshire Chamber of Agriculture; the example he set and the spirit of inquiry and discussion with reference to agriculture which he kept alive while he was at West Buckland—I think may be taken as the second ground for the feeling of gratitude and respect with which he is regarded by the farmers and landowners and land occupiers of North Devon. The third is the way in which he has laboured for the spiritual, moral, intellectual, and physical benefit of his own parish. One much-lamented friend of mine—the late Chairman of Quarter Sessions—in sending his contribution to the testimonial, said that he did it not only as one of the earliest friends and supporters of the Devon County School, but also as an old ex-magistrate of the Southmolton Division, where he remembered that West Buckland enjoyed a character somewhat resembling, though inferior in bad pre-eminence, the notorious Knowstone; and another relative of mine, when I mentioned this to him, heartily concurred, and said that of all the changes wrought in North Devon none had more surprised him than those he had witnessed in the parish of West Buckland.

The Rev. Prebendary BRERETON, in responding, said a large portion of his life had been spent in that neighbourhood. West Buckland was his first settled home, and it was thither that he brought the dear companion whose portrait they had so kindly joined with his own. The men of North Devon were deeply attached to their beautiful county; yet he ventured to think that none of its true-born sons had ever loved it more sincerely than himself.

THE SHEPHERD'S DOG TAX.—“Ah, ha!” exclaimed the shepherd, with a scowl which to me was incomprehensible, “here's another!” He whistled his dog, and the animal not coming up, with a Gaelic execration he smashed every egg in the grouse's nest. I asked him indignantly what he meant by a destruction so wanton. “Mean!” he replied, and stared at me as if I had been the party on whom he would fain have had his revenge. “What I mean is this, Mr., and I'll put the question to yourself. All we shepherds in A-shire have to a

man agreed to train our dogs to eat the grouse eggs in every nest on the hills, and break ourselves every egg we come across, as a revenge for making us poor shepherds pay 6s. a year for each of our dogs. Our Scottish gentry in your Parliament ought to have stood to us, and kept us out of this damnable tax, because we can't do without our dogs. I am a poor man. I have a wife and nine children, and my wages are only £25 a year. Last winter we lost our little boy. . . . We lost him, and we are £2 in debt to this day for the doctor and the

funeral expenses. Now, Mr., I'll leave it to yourself. Where am I to get the money to pay this tax for my four dogs? Those men who make such laws in London ought to exempt us, or the landowners should agree to pay it for us. If not," he said, stretching out his arms, "while there is life in these limbs, I swear, as the other shepherds have done, when your Sassenachs come down again, that their sport will be like my wife's gown and my children's meal—not so plentiful as it used to be."—*The London Scotsman*.

## LOUD LAUGHTER.

It is to be hoped that the latest ECHOES from the county of Norfolk have not escaped that attention they deserve. The proceedings, indeed, at the North Walsham dinner were singularly opportune and significant. On the very eve of a general election, Mr. Sewell Read, the tenant-farmer member, ventured to ask, amidst roars of laughter, that "the aristocracy would not only give formal permission to their tenants to vote, but would give them that spontaneous and hearty expression which would tell every tenant he was to exercise the franchise as a free and independent Englishman." Of course, to the mere outsider the altogether inexplicable thing here is the intense amusement which so becoming an aspiration appeared to create. It is certainly said that the very feeblest attempt at wit is sufficient to raise a laugh at a public meeting, but in this case one utterly fails to see the joke. Nor would the subsequent speeches seem in any way to warrant the display of such incongruous hilarity. Lord Kimberley, who followed Mr. Read, held it to be "the undoubted right of every man to exercise his franchise as an Englishman, according to his own opinions. It was very well known that some persons connected with himself supported Mr. Read at the last election, and he (Lord Kimberley) could confidently ask any man whether he saw his face darker or had been treated differently because he did not happen to vote on the side he (Lord Kimberley) did." Lord Suffield, again, was "confident that every tenant of his in that room knew that he wished them to vote according to their consciences; and he was sure that the sentiment he had expressed was entertained by the landed proprietors of the county generally."

Nothing could be possibly better than this; nothing more worthy of the serious consideration of those to whom such good words were addressed. Why then the loud laughter that broke out when the subject was broached? If the landed proprietors of Norfolk feel as Mr. Sewell Read and Lord Kimberley do—that every man should exercise his franchise as an Englishman—this may be a matter for some mutual gratulation, but scarcely the occasion for indulgence in uproarious merriment. There must be an under-current here, a certain experience at any rate, of some previous contests that will occasionally prompt one well-to-do man to ask of another the price he has paid for his independence? Lord Kimberley may "not look black," and Lord Suffield may be "perfectly satisfied;" but the election of a tenant farmer has so far not been without its consequences. Singularly enough, on one nobleman's estate, in Norfolk, the only three tenants who voted for Mr. Sewell Read have since left their farms. On another property, the noble owner suffered a tenant, who had voted the wrong way and with whom he had previously been on the most cordial terms, to sicken for six months without making a call or even an inquiry, although the dying man's house was just outside the Park gate. The son of another tenant, on the same land, was refused his grandfather's farm, for no other reason that could be imagined than that

his father had exercised the franchise according to his own opinions; and every man who polled on the tenant farmer's side is now in the agent's black books. The landlord will certainly here and there stand aloof; will say nothing, do nothing, and ostensibly take no part, while his own relatives will be unmistakably decided in the language they use in canvassing his lordship's tenants. Some ten years since—long before Mr. Read's day—a large occupier on being instructed how to vote answered, "We came on the estate in the last generation Tories, and now we have got our orders to turn Whigs." The loud laughter at Walsham is not so inscrutable after all; nor a public permission from Norfolk landlords to their tenants to vote as they please quite such a mere matter of course.

But it may be wholesome to change the venue and look a little in other directions. The Duke of Marlborough in Oxfordshire declines to interfere or to make any sign to his tenantry because his agent has a vote, and is engaged on one of the candidate's committees—the reason of all others, one would have imagined, that should have induced his Grace to declare that he was not to be identified with his agent's electioneering business. In Nottinghamshire, the Duke of Portland's agent sends a circular to the tenants, instructing them how to vote, as his employer has just changed sides, without even thinking it necessary to consult the Duke as to venturing on so monstrous a piece of impertinence; and in Staffordshire, Mr. Harvey Wyatt, *per pro*, is giving the tenants of Lord Lichfield notice to quit. The correspondent of a daily paper thus puts the case: "There are two candidates for Lichfield, Major Anson and Colonel Dyott, the first a Liberal and the second a Conservative. At the Revising Barrister's Court the Conservatives made a gain, and it is my opinion, and the opinion of many other citizens, that Colonel Dyott will be returned if he has fair-play; but Major Anson's relative, his brother, the Earl of Lichfield, owns a great deal of property in the city, and many of the tenants who have Dyottic proclivities have received notices." The writer, after quoting the actual form of these ejectments, goes on to say: "Lest you should not believe me, I enclose one for your inspection, served upon a tenant of Lord Lichfield, who has occupied his holding for more than a quarter of a century, and never been in arrear with his rent." These are of course borough householders, but Lord Lichfield has of late taken such a lead in agricultural matters that the "explanation" which the correspondent of our contemporary suggests would come all the more acceptable, although, so far, we believe, none has been offered. Lord Lichfield, if our memory serve us so far, not long since took a very prominent part in fashioning the best form of agreement, which, however, did not in any way provide for the exercise of the franchise in accordance with the occupier's own opinions. It would no doubt at the time have been thought exceedingly absurd to introduce anything of the sort for discussion at a Farmers' Club, although our Norfolk echoes scarcely go

to this. Lord Lichfield, again, is an active supporter of Chambers of Agriculture; and the chief object of these Societies is, if we read it aright, to have the tenant-farmer's influence more directly felt in the House of Commons. But if a man in a town is turned out because he is suspected of going the other way at election-time, it is only fair to assume that the same thing may happen in the country, and then the business of the Chamber of Agriculture becomes simply a burlesque. The writer of the letter we have quoted, and who signs himself "One of Lord Lichfield's Tenants in Lichfield," has "a high opinion" of his Lordship, as we ourselves have always had. In declaring himself on agricultural topics he has almost invariably spoken with effect and to the point. But agricultural topics and agricultural politics are now becoming inseparable, and it will

be idle to go into debates on the tenure of land, the adjustment of taxation, and so forth, if the independence of the tenant-farmer be not in the outset admitted. There must, however, be no mere make-believe in dealing with this matter; and a landlord who publicly proclaims his desire that his tenants should vote as they please, while his own family and agents are working in a very contrary direction, must not be surprised to find his announcement received with *loud laughter*. All the several kinds of coercion employed are now pretty certain to be made known, and the more they are known the less and less will they be practised. But, perhaps, above all things, it behoves the Societies of Agriculture to try their forces in this way; and however well a man may promise abroad, to be careful to ascertain how he behaves about home.

### FOREIGN AGRICULTURAL GOSSIP.

The effect of the period of scarcity which France has just succeeded in weathering, is forcibly reflected in the great contraction in the exports of wheat from France this year. Thus, in the seven months ending July 31, this year, the total quantity exported was only 43,627 metrical quintals, as compared with 175,234 metrical quintals in the corresponding period of 1867, and 2,157,768 metrical quintals in the corresponding period of 1866. In these exports the United Kingdom figured for 11,850 metrical quintals to July 31, this year, as compared with 102,809 metrical quintals in the corresponding period of 1867, and 1,505,341 metrical quintals in the corresponding period of 1866. Wheat flour, again, was exported France to the extent of only 51,526 metrical quintals in the first seven months of this year as compared with 80,305 metrical quintals in the corresponding period of 1867, and 1,791,156 metrical quintals in the corresponding period of 1866. In these exports the quantity of wheat flour exported from France to the United Kingdom figured for only 1,893 metrical quintals to July 31, this year, as compared with 13,945 metrical quintals to the corresponding date of 1867, and 1,386,430 metrical quintals to the corresponding date of 1866. On the other hand, the imports of Wheat into France to July 31, this year, attained the very heavy total of 7,306,100 metrical quintals as compared with 1,923,900 metrical quintals in the corresponding period of 1867, and 53,500 metrical quintals in the corresponding period of 1866. The largest share of the external wheat supplies received by France this year is set down as having been received from "Turkey," an expression which may be probably taken to indicate the Danubian Principalities. The French administration of agriculture has just published the programme of the exhibition of fat stock proposed to be held in France in 1869. These exhibitions will take place March 16, at St. Quentin, Nancy, Nevers, and Nîmes; and on the following day, March 17, at Nantes, Lyons, and Bordeaux. A general exhibition of fat stock will be held, according to the system adopted last year, at the market of La Villette, March 24. Without taking into account the value of the medals given, we find that the prizes to be awarded at these various meetings are of the following aggregate value:—

CENTRE.	CATTLE.	SHKEP.	PIGS.	TOTAL.
St. Quentin .....	£341	£80	£25	£446
Nancy .....	320	80	25	425
Nevers .....	398	108	38	542
Nîmes .....	244	67	22	333
Nantes .....	474	74	43	591
Lyons .....	408	52	42	502
Bordeaux .....	476	60	33	569
La Villette .....	2646	306	170	3122

The general arrangements for the various meetings present no material variation. The La Villette meeting will commence on Saturday, March 20; on Monday, March 22, the various sections of the jury will proceed with their operations, and the public will be admitted at a charge of 4s. each person; on the following day the charge will be reduced to 10d. (one franc) each person; and on Wednesday, March 24, the exhibition will become a public and gratuitous one, the Minister of Agriculture, Commerce, and Public Works, distributing the

prizes and medals at one p. m.—The Baron de Marignou, president of the Agricultural and Viticultural Society of Mirande, has just died, after a short illness. The baron was one of the first to inscribe his name on the list of promoters and founders of the new Society of Agriculturists of France.—Encouraged by the success which has attended certain steam-ploughing experiments in the plains of the Capitanate, the Italian Minister of Agriculture has acquired one of Fowler's apparatus, which he has entrusted to the agricultural committee of Ferrara, for the purpose of making experiments with it. The trials, which have been directed by Professor Paul Botter, have attracted a very large concourse of landed-proprietors, farmers, and peasants, without speaking as we ought to speak of the pupils of the Bologna School of Agriculture. The experiments were so successful that several landed-proprietors applied for a loan of the machine, in order that it might be tried on their estates; and the Marquis de Rovedin, upon whose land the official trials took place, resolved to purchase one of Fowler's apparatus, in order to break up and bring into cultivation the old pastures which abound on his property. Finally, the Agricultural Society of Ferrara has determined to undertake at its own expense, and in its own workshops, the construction of a steam-plough of the same type. The Academy of Sciences at Milan awards every three years two gold medals, of the value of £40, to the invention or improvement which most interests or concerns Lombardian agriculture or industry: the next triennial period expires in 1870.—The eastern provinces of Austria are unfortunately not altogether without uneasiness as to the health of their live-stock, the cattle-plague having invaded thirteen new localities in Galicia, increasing the number of centres of infection at the close of September to 22. The disease had, it is true, disappeared at other points; but upon the whole, the germs of the malady were not so completely extinguished as had been at first announced, as out of an effective total of 5,643 animals spread over 297 farms or estates 936 were attacked by the cattle plague, which caused 389 to perish, while 519 others were slaughtered exclusive of 124 which were slaughtered as a measure of precaution. From Prussia the advices received are much more re-assuring; no fresh case of cattle plague is reported; and attention is a good deal occupied by the recent opening of a new royal pomological institute at Proskan.—The Scientific Congress of France will open its thirty-fifth session at Montpellier, Dec. 1. Among the subjects which will be considered by the section which will apply itself to agriculture, commerce, and industry, the following may be mentioned:—1. Agricultural credit. 2. Agricultural instruction. 3. Rural roads and the means of improving them. 4. Meteorology applied to agriculture. 5. The cost price of manures in farm workings. 6. The transformation of cultivation in Lower Languedoc. 7. Drainage and its effects in the South of France. 8. The rôle of agents and their influence on the price of food products. 9. The means of developing the consumption of French wines abroad. 10. The rôle of sheep in the working of certain soils. 11. The wools of Lower Languedoc, considered both from an agricultural and an industrial point of view. 12. The insects which attack lucerne, &c. The congress will last until Dec. 10.

## PLOWING MATCHES.

The season for ploughing matches is at its full tide. Good ploughing is one of the best foundations upon which the best farming, or true culture is based. True rectangular furrows are the perfection of ploughing, the straighter in outline the better. They form perfect right-angles for the harrow, so that every furrow presents the same surface for pulverization, whereby they are readily broken down for a satisfactory seed-bed. Moreover this true ploughing provides a firm furrow-sole, so universally sought for, to make a compressed seed-bed, of sufficient solidity to withstand the winter's frost, or the summer's drought. Every furrow in true ploughing rests the bottom section of the furrow upon the furrow-sole, so that all when well harrowed forms one uniformly broken soil, easily to be compressed to the solidity required for the safe and satisfactory progress throughout its growth of every corn plant, but most assuredly of the wheat-plant; but irregular, uneven, bad ploughing is exceedingly detrimental to the progress of every plant growing upon land so ploughed. Bad ploughing is irregular in width, depth of furrow, and rectilinear outline; consequently as the furrows are irregular in width and depth, they press upon each other rather than the furrow-sole, and, without uniformity, the harrow slides over a part of the surface held off by the large high-crested furrows upon which it rides: these only are well harrowed; the under furrows are missed, and in many places there are vacuums between the furrow-sole and furrow-sole, so that with the missed furrows in harrowing, the vacuums left, and the imperfect pulverization attained a very unsatisfactory seed-bed is the result, and the consolidation necessary for the future progress of the crop cannot be evenly obtained; the crop, therefore, like the ploughing is irregular. It is overgrown, rough, and, flagging on the doubly-pulverised furrows; it is thin and dwindling on the partially-broken, or rather missed furrows; the final result is an inferior crop, very uneven in the sample. Good ploughing then is the true basis upon which good crops are raised, and to encourage and promote this great desideratum, competitive ploughing matches have been very generally established throughout the United Kingdom, and with immense benefit in practical agriculture, and no little advantage to the farming interest, and the general public. It is one of the most gratifying of rural sights, to witness a large, well-appointed, and well-contested ploughing-match. The fields in which the competition is to take place are chosen for their convenience, proximity to each other, and suitability to exhibit superior work; generally clover ley or grass seeds are selected; but wheat-stubble land, nicely mown, is occasionally provided, care being taken to ascertain that the soil is sufficiently consolidated to insure a perfect furrow-sole in ploughing it. This done, the various works are set out according to the number of entries previously made to the managers or secretary of the match, or the society under whose direction the match is instituted. In the majority of matches, the extent of land to be ploughed by each ploughman is fixed and limited to half-an-acre; this to be ploughed within a given time, and at not less than a certain fixed depth. It is customary on these occasions for the farmer to send his best team with which his ploughmen are to contest the match. This adds greatly to the interest of the gathering. The various ploughs from the various plough-makers brought into competition form another object of considerable interest, both to the farmers and

the plough-makers. The latter class frequently providing their improved ploughs to be put into the hands of superior ploughmen of the district, whilst others will bring their own teams, men, and ploughs for competition, and the exhibition of their implement in work. To describe one of these very attractive rural gatherings will suffice for our purpose, in showing what a good local ploughing match really is, and how it is conducted and carried out. In prospect of the forthcoming match, neighbouring farmers are invited to offer to the secretary of the association suitable fields for the match. The most eligible offer is of course accepted. The number of entries being ascertained, the stewards for the match set out the works in half-acres, according to the numbers required for each class, each work having a space between, and each work is denoted by a peg or stake at each corner, upon one of which is the number of the work, and by which the judges decide. In this case the number of works thus set out amounted to 88, and very few of the ploughmen were absent at the match. It requires great care to set out several fields correctly so that every work shall be of uniform width throughout each field, and each separate work of exact width at both ends, otherwise the furrows would not be of equal width at each end, and thus expose the ploughman to difficulty and perhaps loss of a prize. At this meeting the match was divided into nine classes: farmers' sons from 21 yrs. to 24 yrs., ditto from 18 yrs. to 23 yrs., and ditto under 18 yrs. Of farmers' sons collectively there were 19 entries and three others not eligible according to rule—22 farmers' sons at one match. Thirty years since great difficulty was experienced in persuading three young farmers to enter for competition. The fourth class is yearly servants; fifth, labourers; sixth, single men under 25 yrs.; seventh, ploughboys under 18 yrs.; eighth, prizemen with swing ploughs; ninth, prizemen with wheel ploughs. The two latter classes open to all England. Great interest occasionally attaches to these displays, owing to the skill of the ploughmen, but recently "The Farmers' Sons" classes have attracted equal attention. The morning arrives; the teams assemble at the appointed place by eight o'clock according to the stipulations; upwards of 80 teams are drawn up; they are divided into classes; tickets are provided according to classes and numbers. Each ploughman draws by lot a ticket from the hat, and is directed to the corresponding number in his class for his half-acre or work. The general direction is then given. Farmers' sons to their works south end of the 18 acres. All England classes to the northern end, &c. Class fourth, yearly servants, to the northern end of 22 acres. Class fifth, labourers, to the southern end. Class sixth, single men, to the two far nine acres. The ploughboys to the near nine acres. By nine o'clock all are in their places, their plough-irons reversed. The steward takes a conspicuous position, waves his hat and cries, "Set your irons," for which 15 minutes is allowed; he then again waves his hat and cries, "Off." In an instant all the ploughmen are seen running and hurrying to set up their beacons and marks to ensure their drawing a straight ridge or furrow across the field. In a very few minutes all are in full competition, and a most interesting and pleasing sight it is. Their work must be completed within four hours, so no time must be lost, all is full activity without hurry. The intense interest and care shown by each competitor create a corresponding feeling in the visitors, and, in its way, is equal to the excitement experienced in many less useful matches. The match goes on. The

company increases every minute. The headlands are crowded. Some favourite ploughman or some likely competitor receives their ovation as he approaches the headland; and, according to public opinion, he stands foremost in his class. Occasionally matches are made between individual ploughmen, or some crack local ploughman more especially competes with the renowned ploughman usually sent out. Farmers' sons, to their credit and honour, will occasionally pit themselves against these practised men. In the late Lincolnshire ploughing matches Mr. H. Goodyear has frequently contested the "All England" prizes, and won too. To see two such ploughmen as Goodyear and Barker in close competition is, to admirers of good ploughing and well-executed farm-work, a matter of great interest and pleasure. It is marvellous to see with what straightness and precision every furrow is laid. The exact width and depth is upheld throughout the half-acre; and in the finish the balk and mould-furrow is so taken up as to be like, or equally level with, the rest, and as ready for the harrow. Owing to these especial competitions, and the excellency of the general ploughing, these matches have become very popular in very many rural districts; and it is no unusual thing to see not only hundreds, but thousands, of spectators, taking great interest in the proceedings, and anxiously watching the successful efforts of some, or the inferior doings or mistakes of others. In this way the match goes on, the stewards endeavouring to keep all in order, and watchful to see that every ploughman completes his work in the given time: if not, it is his duty to draw up the stakes or pegs denoting the work, which is thus thrown out of competition. When all is finished, the judges, who are generally three well-known, respectable farmers, who in their own day could win a prize at a ploughing match, go over the work in the classes separately, taking both ends and across the works when needful, so as to come to a correct decision, from viewing the work in every part. The stewards assist, by remaining at the ends, and announcing the number of each work, taking care to conceal the name of every ploughman, as only by the number of the work the decision is given. In this way satisfaction is given, and is depended upon by the ploughmen.

In the most popular matches a dinner is subsequently given to the ploughmen, at a moderate cost; and a truly pleasant meeting it is. They discuss all matters connected with the labourers' department of these associations. The ploughing which they have scrutinized, the stacking, thatching, shepherding, hedging, and ditching, till the secretary or other officer comes before them to read the award of prizes. The excitement is then at its height. Every countenance shows the most encouraging interest. They take a precursor for future years. To increase their pleasure and prove their judgment, the secretary occasionally asks, as class after class is about to be read out, "Who wins the silver cup?" "Mr. A.!" shout a number of them. "No, no!" shout a dozen others: "Mr. B. has it!" The secretary reads "Mr. B.," sure enough. "Who wins the new watch?" "Harry A.!" shout a large number. "No! Jem B.!" say several. "No, no! Harry has it!" and, sure enough, Harry is the winner. "Well, now, who wins the new hat?" (the highest honour.) "J. B.!" shout the majority. "No! H. G. is first!" "No, no! J. B.'s is the best work!" and, true enough, he had the award; and in the case alluded to, out of twenty-one prizes or awards, these men—about sixty in number—only differed from the judges in their awards of three or four minor prizes, in a truly well-contested match. This gives the men great confidence in the judges, and ensures their future competition. The prizes are then distributed; and, amidst a few hearty cheers, the men retire to their homes, and, to their credit be it spoken, without any symptoms of inebriation or dissatisfaction.

Agricultural societies making great efforts to improve the labouring population in skill, industry, and good conduct are worthy of every support; and these efforts have already so influenced them as a class, that they now hail almost as a boon every new appliance for the economising labour, feeling assured that ultimately, in the management of the soil upon improved modern principles, a greater demand for manual labour is created—a fact long established beyond dispute.

## CALENDAR OF AGRICULTURE.

Finish the sowing of wheat, if any remains undone from last month. Remove Swedish turnips from the ground in fine weather. Cut by hand-sickle the roots and tops from the bulbs, and give the tops to the sheep in the fields, or to the store cattle in the yards. Carry the crop to the home-stead, and place the roots in a long heap, to be thatched with straw, as a store.

Flood-watered meadows: clean out and put into proper order for use the main channels, the conveying gutters, with the sluices of flood-gates.

Begin to cut underwoods; plant forest trees in clumps at corners and in single standards, in places where shelter and shade may be required, or effect can be produced. A clump of a few trees is useful in permanent pastures for rubbing posts, and as a shelter from heats and rains, placed on any knoll in the field, or in the corners to face all directions. The position will depend on the formation and elevation of the ground. The sycamore, beech, and ash are well adapted for this purpose, with an

early and wide-spreading foliage, and in growing quickly beyond harm's-reach from animals.

Open drains in plantations by means of cuts directed along the bottom of hollows, and strictly following the natural formation of the surface. The main channels must be kept well open and clear, to receive the contents of the small drains that are in extent to receive and convey the surface-water—in width two feet, and depth one and a-half feet, at an average extent. The declivity of the ground will direct the course and size of the open drains.

Repair old fences: cut all old growths that are yet fresh close by the ground, in order to obtain a wholly new growth of hedge, and in blanks place strong young sets, cut short, in a bed of fresh soil, so as not to touch the old dry bank of foundation. Slant the cuts upwards, and alternate the face and backs of the cuts to each other. The plashing and layering of branches is not much to be used as the gash of incision generally inflicts a mortal

wound, and kills the branch into dead timber, not at all agreeable to any living growth. In making new hedges of thorn, draw a straight line of incision by spade; invert the turf or spit of earth; slope it backwards to receive the sets of a strong growth cut into lengths, four inches apart, and covered with soil, leaving the upper end of the set bare to view. In wet soils a ditch is dug in front of the line of hedge, and the excavated materials are thrown over the sets, making an open mound to receive rains and meltings of snows, to be conveyed downwards as moisture to the young roots of the sets, which thrive best on a grassy turf, of which the decomposition affords the best food of plants. In dry grounds a hollow excavation in front of the hedge affords the materials to be thrown over the hedge to form the mound, which remains loose and open, and along with the hedge is protected on both sides by a rail of fences for about eight years, till the hedge is grown into a fence beyond damage. During that period of time no cuttings are done of the young thorns, save lopping any shoots that very far overgrow their neighbours, and filling gaps by bending and fixing side-branches over the vacancy. When the hedge has reached a height of six feet, the form may be cut into any shape, if at any time the free and wild luxuriance of nature be not more pleasing than the uniform sameness produced by the shears of the gardener. On lands that produce large growths the free luxuriance will be most pleasing. The general mode of planting hedges raises a large dry mound of earth, with a sloped wall over it, which excludes all moisture from the plants, which must have access to air in the nearest possible approach, along with moisture. Roads are generally sunk in a trench, instead of being made on the surface of the ground.

Cast open ditches in all places that require that provision for the conveyance of water, confining the use of open cuts for a fence in all possible cases, as no ditches must incommode the cultivation of lands or the pasturage of fields. Side ditches must be covered up.

Repair roads by laying broken stones on the sunken places, and by keeping all roads in a dry condition, by throwing the water sideways into the ditches, or longitudinally along a declivity of the road. A convexity of the body of the road is the most eligible.

Thrash grains regularly by machinery every ten days, and constantly by flail, to supply provender for cattle and litter for the yards. Sell and deliver all grains on being thrashed. Forestalling is seldom profitable, and a granary is little useful as a farm-building, except for holding any seed grains before being sown. Saleable produce goes from the barn much more conveniently and directly. Horses' corn may be laid in granary to wait being used; but a mustiness succeeds the freshness, which is ever most agreeable to the taste of animals, and also for any use of grains.

The fattening bullocks are placed in yards (two and three together of the largest size, and not exceeding four), with a shelter-shed, with one opening, and the roof filled with straw to the top, for sake of warmth, which in a moderate degree is essential

to the existence of organised life. An exposure in a yard of fresh air is also indispensable. Wooden cribs, with latticed bottoms, are preferable for holding the turnips, and passing downwards the rains and the filth from the roots. These cribs are fixed along a side wall, with straw cribs two in number, which are placed in the yards, and frequently moved, in order to prevent a dry position of the straw into dung underneath. The turnips and other food is given early in the morning to serve the day, or again at noon. Store cattle are placed in yards in six or eight together, and supplied with food in the same way, with a trough of fresh water, where succulent food is not very abundant.

The horned cattle of North Britain are best tied to stake in houses, as the restless disposition prevents the quietness that is necessary to fattening. The dung must be kept in a level position, in order to be equally moistened in the yards, that are basin-shaped in the bottoms, and pitched to retain the moisture from rains, snows, and urine, and regularly and thinly covered over with litter of straws cut into short lengths by the steam-thrashing machinery. This condition of short litters will very much facilitate the impregnation of the straws by the urinary liquids, and the subsequent covering of the dung in the land as manure. After all that has been spoken and written on the subject of liquid manure, and of fattening cattle in stalls or sheds, the preference is yet to be given to the yard with shelter-sheds, and to absorption of liquids by earths and vegetable matters. This conclusion was evident from the first mootings of the question.

Animals of the same age and size should be placed together in fattening or in store condition. The arrangement will produce a most agreeable and beneficial evenness of advancement, and shows a professional skillfulness in the production and adaptation of animal life. An incongruous assortment of any articles is ever displeasing and unprofitable, a sign of ignorance, and a sure mark of the want of system that is so necessary in any profession or employment.

Feed sheep, as directed last, with fresh food every two days in the fattening flocks on the ground, and the store flocks on stubbles and grass leys. Give milch cows beet and cabbages, alternated with one meal of steamed chaffs. Feed pigs as directed last month; give ample littering, and keep the animals dry. Feed poultry with light grains of oats and barley, and with steamed potatoes mixed with meals, placed in a trough in the yard under cover.

Place young horses in a roomy yard, with a shelter-shed and ample supply of fresh water. Feed the animals plentifully with chaffs of hay and straw, oats, and bran, and once a day with raw or steamed roots. The first winter's keep has a very large share in making good animals. The calves of this year deserve the best treatment in a warm yard and shed: a good supply of water, food, and litter.

Plant potatoes in the fields, after they have been fallowed for the purpose during last month. Open drills thirty inches wide, and deep as possible. Apply a large quantity of half-rotted farmyard



dung, in which the sets are sunk, and protected by a covering of earth thrown over it by two deep and heavy furrows of the common plough, which split and never set the ridglets. The crops are

earlier and more abundant than from the spring planting, but can only be done under the benign climate of South Britain.

## CALENDAR OF GARDENING.

### KITCHEN GARDEN.

**Artichokes:** protect the plants by mulch or masses of leaves, after removing all the old stalks and decayed foliage. Dig the roots for temporary supply of the so-called Jerusalem artichoke. Dig potatoes, carrots, parsnips, and beet. Secure all roots in dry sand, carefully observing the condition as to soundness or decay. Keep the store very dry.

**Brocoli and cauliflower** in the open ground should be laid down, and be guarded with a covering of dry earth laid close over the stems.

Finish the earthing-up of celery; if frost threatens, cover the ridges and tops with dry haulm.

Tie up some plants of endive, and remove others to dry for blanching.

Give air occasionally to any lettuces in frames. Do the same by radish and salad.

Try again for early peas and beans. Transplant more spring cabbage, and fill up blanks in the cauliflowers of August, sowing into warm borders where they could be occasionally protected.

Cover sea-kail for forcing, and prepare more asparagus plants, placing them in pits with a bed of tree leaves under the earth.

Leave strawberries for the winter, protected by their own foliage.

### FRUIT DEPARTMENT.

Gardeners in full practice are forced to prune the wall-trees and the berry-bearing shrubs at almost any time; but the plants gain nothing by pruning now, February being sufficiently early. However, if apple and pear trees, or espaliers, have not been already finished, the regular spur pruning should be performed in mild weather.

Raspberries may be tied by cords neatly to stakes, six rods to each, stopping at angle towards the north, or to a neat open trellis. It is a good policy to secure by this means the full exposure of next year's growing canes to the sun. The plants are too much crowded by the perpendicular confined tying to the stakes.

Spur prune and nail in the branches of plum and cherry trees.

### FLOWER GARDEN.

**Plant bulbs**—tulips, hyacinths, crocus, narcissus, &c., &c., in grounds of rich sandy beds. Open the holes neatly, place the bulb an inch or two deep; introduce the dry fine earth around each, observing that every part, particularly at the base, be touched. Move a few herbaceous plants; roughly fork the surface of beds, and scatter decayed leaf-mould and old dung of animals over it. Observe neatness and order everywhere.

Pits, frames, and similar erections, with semi-hardy plants, should be kept as dry as possible, and aired at every convenient opportunity. Dry

sawdust is a fine material to plunge in, as it guards the mould effectually.

This month ends the labours of the year, and begins the preparations for the crops of the coming seasons. Some few root plants are left in the ground to be dug fresh for daily use, and in hard weather require a covering of fern or rough straws, which protect better than earth, being lighter, drier, and open to fresh air when the temperature has changed. The vegetable freshness is also secured—an inestimable advantage to the quality of all esculent plants. Except in the stormiest latitudes, where deep snows of long duration, with frost of intensity, prevent access to the plants, all roots should remain in the ground over winter, in order to be freshly dug for use, until the spring crops require to be sown on the ground. The faecal exudation that proceeds from all fleshy plants, of which the tap roots penetrate and divide the ground, will be amply developed by the winter's residence, and forms a powerful aliment to the future crops with creeping roots. The tops being closely shaved from the plants, the spring vegetation will be delayed as late as possible, but not to allow any damage to the crops that follow. There is a wide difference between a vegetable taken dry from a store pit, in which it has lain for some time, and a root cut or dug from the ground on the morning of its use. The quality and value of the vegetable in the fresh condition is preserved in the ground, and lost in the store pit. Vegetables lose quality by separation from the ground in any length of time, and the exposure by the slicing of roots, especially in dry weather, evaporates the juice, and diminishes the quality of the plant.

Dung is applied at this season of the year to any out-grounds in fallow, and to lands for the coming crops. The manure has been prepared as directed in liquid tanks, with the mixture of grassy herbage and tall succulent weeds cut into short lengths, saturated with suds from the kitchen and scullery, and fine earths and scrapings, with the droppings of animals. These dry articles may be prepared in a compost with old lime, forming a manure of a rich value. For this use there is no better material than the grassy earths from the sides of roads and ditches; being fresh and unused, a ready mode is afforded of reciprocal action. The cheapness of the article is a very high recommendation. These manures are now dug into the soil by being placed in a thin layer on the breast of the trench, and covered with next spit that is moved with the spade. The decomposition of the applied substances with the soil during the winter months will produce for the spring movements a black clammy mouldiness—a most powerful fertilizer in the humus of scientific distinctions. This purpose will be much advanced by a mixture of hot lime

cinders along with the dung; will dissolve slowly in the soil, evolving much heat, which will permeate the whole mass, warming it and raising the temperature of the ground by the moist exhalations. These agents will produce a most excellent state of ground for the spring crops.

The beds of ground for strawberries and flowers

being formed or renewed with fresh soil, are to be laid in the subsoil, with a stratum of the dung, which is covered with a fine earth, the mixture with the dung being performed by the subsequent digging of the ground. The manures and the soil being equally fine in condition, a very ready and a most beneficial mixture will be effected.

## AGRICULTURAL REPORTS.

### GENERAL AGRICULTURAL REPORT FOR OCTOBER.

The weather having been all that could be desired, farmers have been enabled to proceed with sowing operations with rapidity, and a large breadth of land has been placed under wheat. At the same time, thrashing has progressed slowly, and the quantities of wheat sent forward have been somewhat limited. This has greatly retarded the downward progress in prices; but millers, being convinced that the arrivals will in a short time be on a larger scale, have operated with caution, and only to supply immediate wants. The fall has not exceeded 3s. per qr., the trade having ruled very quiet throughout the month. The supplies of foreign wheat on sale at Mark Lane have been on a full average scale, and the quality of the produce has generally been excellent. Nevertheless, the demand has ruled inactive, and Baltic wheats, although offered at a considerable reduction, have found few purchasers. The late arrivals of American wheats were in excellent condition, but they could only be disposed of on lower terms. Prices on this side must still be considered high, and a comparison with former years shows that the quotations now current here are far above the average. Under these circumstances, the English markets will continue to be remunerative outlets for the superfluous produce of foreign countries, and we may anticipate that our imports will continue on an extensive scale for some time to come. Stocks of wheat here are much exhausted, and large quantities must come forward before they can be replenished and brought to their natural level. The unsettled state of the home market, however, has restricted operations in wheat for shipment, and the attention of the floating-cargo trade has been confined to parcels off the coast. Speculators are not sufficiently advised of the future course of the market to enter into business for future delivery. There is no doubt but that prices will continue to recede; but the question as to the extent of the fall is not so easily answered. Much will depend upon the shipments from America, but we apprehend that, at the present prices ruling at New York, there is not much margin left for profit on this side. Freight from the other side still rule high, notwithstanding the recent reduction, but it is probable that a competent supply of tonnage will soon be forthcoming. Taking into account the large yield throughout America, and the superior quality of the produce, any considerable shipments will undoubtedly influence the quotations here. Until some considerable reduction takes place in values at New York, however, we cannot look for any extensive operations. On the Continent very little has been doing on English account, speculation having for the moment ceased, and prices have been on the decline in sympathy with the English markets.

Only moderate supplies of barley have come to hand, but the general quality has been good, especially of that grown on heavy lands. Fine malting barley has realized 53s. per qr., and Saal and French qualities have changed hands at that figure. This is the highest price that barley has touched for a long time past.

An extensive business has been done in oats, and the quotations have been on the advance. Notwithstanding the heavy importations of Russian descriptions, they have all been taken off at improving rates.

Beans and peas have been scarce, and prices have tended upwards. Probably the crop of beans this year is the worst that has ever been known in this country.

The flour trade has been very inanimate, but the top price of town-made remains unaltered. Foreign and country marks have been difficult to quit on lower terms.

A great improvement is noticeable in the pastures. The recent heavy rains have produced a good growth of grass, but the stock is still suffering from the continued drought during the summer months. Many of the beasts sent to market are in poor condition, although a great improvement is observable. Swedes, turnips, mangolds, &c., have progressed more favourably than could have been expected, but the season is too far advanced to look for any great yield; we shall, therefore, probably experience a great scarcity of food for stock during the winter months.

The supplies of hay and straw on sale in the metropolitan markets have been only moderate, but of good quality. The demand has ruled fairly active, but the quotations have given way in consequence of the improved appearance of the grass lands. Meadow hay is now quoted at £4 4s. to £5 15s., clover £4 4s. to £6 10s., and straw £1 5s. to £1 15s. per load.

The potato crop is turning out much better than was expected, and the accounts from Yorkshire and from Ireland have been more encouraging. The importations have been heavy, and of very various quality, many having been much affected by blight. The supplies having been in excess of the demand, however, prices have ruled low. French and Belgian whites have sold as low as 40s. to 75s., the quotation for English regents being 90s. to 140s. per ton.

The yield of hops has not proved so large as was, at one time, anticipated. At the time of throwing out the burr, it was thought that the yield would have been unprecedented, but the subsequent unfavourable weather greatly changed the aspect of affairs. Still, we believe the out-turn here to be a fair average one, while on the Continent and in America the greatest success appears to have attended the planters. Our imports have consequently been heavy, and prices have been on the decline. English hops are quoted at £4 4s. to £5 and foreign qualities at £3 3s. to £5 10s. per cwt.

The wool trade has continued greatly depressed, and English descriptions have further given way in value. Large quantities of Colonial produce have come to hand, and for the November sales it is estimated that about 110,000 bales will be catalogued, namely, 70,000 Australian and 40,000 Cape. This is a large amount for the November series, and it is not improbable that, notwithstanding an apparent revival of trade in the manufacturing districts, prices will further decline. It is evident that production has, for the moment, overtaken the powers of consumption in this country.

The Scotch and Irish markets have been fairly supplied with produce of all descriptions, and prices have fluctuated in sympathy with the quotations here. Some considerable shipments of Irish oats have been made to the London markets, but only limited quantities of Scotch grain have been sent south.

### REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

The steady rains which have fallen in all parts of the country since our last report have wrought a material improvement in the condition of the pastures, and cattle have fared much better on the land than could have been expected, considering the drought which prevailed for so long a time. There being less necessity for forcing beasts to market, the

arrivals of stock from our own grazing districts show a falling off, when compared with the previous month, whilst its quality has slightly improved. Very few prime breeds, however, have been received. As regards number, the Continent has contributed fairly to the wants of the metropolis, but the weight of most breeds has been considerably below an average; nevertheless, the later arrivals have been received in rather better condition. With the exception of prime stock, which has met a fair sale, inactivity has characterised the demand for both English and foreign beasts, and prices, although not quotably lower, have had a drooping tendency. The extreme quotation for the best Scots and crosses throughout the month has been 5s. 4d. per 8lbs.

Notwithstanding that the prohibitory measures respecting the removal of foreign sheep have continued in force, fair supplies are still forwarded from the continent, the arrivals during the month having amounted to nearly 18,000 head, the whole of which after being slaughtered at the waterside, have been sent to Newgate and Leadenhall markets for disposal. The receipts of English sheep have been much less than in the preceding month, and but little improvement has been noticed in their condition. The few prime Downs and half-breeds offered have met a ready sale, at from 5s. 2d. to 5s. 4d. per 8 lbs. In other respects the trade has ruled heavy, and previous quotations have been with difficulty obtained.

Only moderate supplies of calves have been brought forward. Prime breeds have moved off freely at very full currencies, otherwise the inquiry has been limited. Prices have ranged from 3s. 6d. to 5s. 4d. for 8 lbs.

For the time of year the supply of pigs has been limited. The trade for them has ruled steady, at from 3s. 4d. to 4s. 4d. per 8 lbs.

There is no doubt that there will be strong demand for artificial food during the winter months, in consequence of the scarcity of grass, and the failure of the root crops.

For oil cakes there has been a healthy inquiry. Best New York linseed cakes in barrels are now selling at £13 7s. 6d. to £12 10s., ditto in bags, £12 5s.; Western in bags, £11 15s. per ton, ex-ship. Ordinary to well-ground cotton cakes are worth £7 12s. 6d. to £8 per ton.

The total supplies exhibited in the Metropolitan market have been as under:—

	Beasts	Sheep	Calves	Pigs	Head.
Oct.	...	...	...	...	26,569
Nov.	...	...	...	...	109,160
Dec.	...	...	...	...	1,446
Jan.	...	...	...	...	1,383

## COMPARISON OF SUPPLIES.

Oct.	Beasts.	Cows.	Sheep.	Calves.	Pigs.
1867	28,340	170	103,870	1,129	2,865
1868	27,600	200	99,200	1,066	4,340
1865	30,210	132	157,340	2,932	2,478
1864	33,840	519	137,424	2,671	3,820
1863	30,512	535	110,800	2,029	3,439
1862	28,975	526	118,780	1,855	3,286
1861	28,220	539	121,390	1,626	3,650
1860	26,240	525	123,250	2,289	2,620

The supplies of English, Scotch, and Irish beasts thus compare with the three previous years:—

From—	Oct. 1864.	Oct. 1865.	Oct. 1866.	Oct. 1867.	Oct. 1868.
Lancashire, Leicestershire, and Northamptonshire	10,600	8,450	6,000	7,340	11,160
Other parts of England	3,500	3,700	3,000	2,800	1,790
Scotland	123	53	16	7	267
Ireland	2,070	900	580	1,820	1,110

The Imports of foreign stock into London have been:—

	Beasts	Sheep	Calves	Pigs	Head.
Oct.	...	...	...	...	12,744
Nov.	...	...	...	...	17,891
Dec.	...	...	...	...	962
Jan.	...	...	...	...	1,948
Total	...	...	...	...	33,545

## COMPARISON OF IMPORTS.

Oct.	Beasts.	Sheep.	Calves.	Pigs.
1867	13,061	29,265	957	2,911
1868	15,876	30,108	1,378	4,859
1865	15,344	69,611	1,952	9,135
1864	16,074	33,715	3,339	5,537
1863	11,560	37,521	1,129	3,965
1862	7,906	28,109	1,327	1,600
1861	5,577	42,538	1,207	5,315
1860	6,750	24,980	1,662	2,074
1859	6,036	24,323	784	878
1858	4,600	24,145	1,581	553
1857	5,819	24,102	1,998	1,233
1856	8,871	10,502	1,280	895
1855	8,136	21,137	1,358	1,501
1854	6,894	16,328	1,009	1,063

Beef has sold at from 3s. 2d. to 5s. 4d.; mutton, 3s. 2d. to 5s. 4d.; veal, 3s. 6d. to 5s. 4d.; and pork, 3s. 4d. to 4s. 4d. per 8lbs., to sink the offal.

## COMPARISON OF PRICES.

	Oct., 1864.	Oct., 1865.	Oct., 1866.	Oct., 1867.	Oct., 1868.
Beef from 3 to 5	4 3 4 to 5 4	3 6 to 5 4	3 2 to 5 0	3 2 to 5 0	3 2 to 5 0
Mutton...	3 8 5 6 4 4 6 8	3 8 6 4 3 2 4 10	3 8 6 4 3 2 4 10	3 8 6 4 3 2 4 10	3 8 6 4 3 2 4 10
Veal.....	4 0 5 4 4 4 5 6	4 2 5 6 4 2 5 4	4 2 5 6 4 2 5 4	4 2 5 6 4 2 5 4	4 2 5 6 4 2 5 4
Pork.....	3 6 4 10 4 4 5 10	4 0 5 2 3 4 4 2	4 0 5 2 3 4 4 2	4 0 5 2 3 4 4 2	4 0 5 2 3 4 4 2

The dead meat markets have been fairly supplied. The trade has ruled heavy, at the annexed quotations. Beef from 3s. to 4s. 8d., mutton, 3s. 2d. to 4s. 8d.; veal, 3s. 6d. to 4s. 10d.; and pork, 3s. 2d. to 4s. 8d. per 8lbs. by the carcase.

## AGRICULTURAL INTELLIGENCE, FAIRS, &amp;c.

**ALCESTER FAIR.**—There was a larger supply of sheep and cattle than has been seen here for a long time, but very few of good quality. Mutton varied from 4d. to 7d. per lb.; prime beasts sold well, but others changed hands at a low rate.

**COLCHESTER FAIR.**—Welsh and Irish stores ranged from £5 to £15, Galloway Scots from £10 to £13. Fat beasts ranged from £15 to £18. A few fat sheep made from 40s. to 46s., lambs from 12s. to 16s. A good supply of cart-horses and colts, the best horses realising from £30 to £40, and good colts from £25 to £30. Mr. W. Fenner, of Colchester, showed a capital group of ponies, some of which sold at from £5 to £20.

**GLOUCESTER MONTHLY MARKET** was well supplied with all descriptions of stock. Trade was languid at the following prices: Beef 7d. to 7½d., mutton 6d. to 7d. per lb., bacon pigs 10s. 6d. per score, porkers 10s. 6d. to 10s. 9d. each. Almost an entire clearance was effected.

**HELSTON MONTHLY MARKET.**—There was a small supply, and no fat cattle. Lean cattle brought from 40s. to 45s. per cwt. Sheep were rather low.

**PRIZES AT WINCHESTER FAIR.**—A piece of plate, value £20, given by Mr. Jas. Dear, for the best 100 Hampshire Down Wether Lambs, bred by the exhibitor, Mr. E. Bailey, jun., Worthy; second prize, £10, Mr. W. Cordery, Hazely.—A piece of plate, value £15, for the best 100 full-mouth Hampshire Down Ewes, which have been in the possession of the exhibitor 12 months, Mr. W. Cordery, Hazely; second prize, Mr. Fitt, Westley.—A piece of plate, value £8, for the best 50 lambs of any breed, the exhibitor's farm not exceeding 400 acres, Mr. Vokes, Worthy.—A piece of plate, value £5, for the best 50 ewes of any breed, the exhibitor's farm not exceeding 400 acres, Mr. Bowker, Harestock.—A cup, value £10 10s., given by C. W. Benny, Esq., for the best 100 Hampshire Down wether lambs, that have never been fed on corn, cake, or pulse, and have been bred by the exhibitor from a regular flock, consisting of one-third two-tooth ewes, Mr. Fitt, Cheriton.—*Winchester Traders' Prizes:* A piece of plate, or £5 5s., for the best pen of 100 stock ewes, which have never been separated from the flock till the day of exhibition, and kept by the exhibitor for breeding purposes, Mr. W. Warwick, Easton; second prize, £2 2s., Mr. E. Fitt, Littleton.—A piece of plate, or £5 5s., for the best pen of 100 ewe lambs, bred by the exhibitor, never having been fed on corn or cake, Mr. W. Warwick, Easton; second prize, £2 2s., Mr. E. Fitt, Littleton.

## REVIEW OF THE CORN TRADE DURING THE PAST MONTH.

At the commencement of the past month, large arrears of rain were due as the consequence of the severe and protracted drought, and tillage was much hindered in consequence; but before a week had passed the needed supplies came in plenty over all parts of the country, and with the abundance of latent heat in the soil, the renewal of vegetation was marvellous. The meadows renewed their freshness, and all the outstanding esculents made rapid progress, the most telling effects being produced in the late sown turnips, about which there was a general despondency. The rain, however, was of no use to the late potatoes, whose qualities have been much deteriorated by an unequal growth, and whether they will keep is very questionable. Every preparation for wheat-planting was rapidly made, and a good quantity has already been sown, not only in this country, but in France, Belgium, Holland, and Germany; under most favourable circumstances. The increased dampness of the atmosphere has somewhat affected the condition of the newly-threshed samples of wheat; but the bulk has been so thoroughly well harvested, the injury, hitherto, is small. We have, however, in times past found the driest seasons no security against the all-pervious influence of winter fogs; but the grain this year is generally so plump and full, that we hope its quality will carry it through the vicissitudes of winter and spring, for the most part, unharmed. After a good crop there generally comes a succession of dull and drooping markets, and the past month have been no exception to the rule, not one of the markets have been of the forward kind, everybody being fully assured we were well provided for, till spring, out of our own resources and the ordinary foreign imports. Prices have, therefore, given way 2s. to 3s. per qr. This reduction has made wheat actually cheaper than some sorts of spring corn, which has kept advancing, and we hear already that some low qualities have been used for feeding purposes and malting. The foreign imports have not been on such a scale as to justify the present depression, nor do the deliveries show that farmers have been anxious to sell for the past month, compared with its immediate predecessor, the sales having been 80,000 qrs. less. It may be, however, that dulness will be in the ascendant till Christmas is past, as the payment of rents must be met by available stock, and there is no good stock to fall back upon but wheat. But if farmers can meet their engagements without a present sacrifice, we fully expect they will get better prices. The wants of Spain are said to be great, and the prices paid there are greater than our own. Europe having lately been influenced by London rates, has had calm or declining markets. American reports are yet conflicting, but the last advices from New York show a partial rally. The rates herewith quoted, are from recent advices. White wheat at Paris, 56s. 6d., red, 53s. Wheat

in several Belgian towns, 54s.; white Zealand at Rotterdam, 57s.; Holstein at Hambro', 53s.; Saale and Marks, 51s.; high mixed at Danzig, 55s. free on board. Cologne red, 51s.; Romanshorn in Switzerland for red Banat, 52s.; at Pesth in Hungary, the same kind of wheat was 42s.: wheat at Galatz, 40s. 9d.; at Ibrail, 39s., at Alexandria, 38s.; hard at Algiers, 49s. 6d., soft 51s. Spring wheat at Montreal, 1 dol. 22½c. (41s.) per 480 lbs. The same at New York, 47s. per 480 lbs. Quotations at Milwaukie, for No. 1. spring wheat, 1 dol. 50c. per bush. (40s.) per qr. of 480 lbs.; at Chicago, 1 dol. 47c. (39s. 3d.) per 480 lbs.

The first Monday in Mark Lane commenced in moderate supplies of English wheat, with good arrivals of foreign. The show of samples during the morning on the Essex and Kentish stands was small, and there was an improved demand for fine white samples, at fully the rates of the previous Monday; but red sorts were not in favour. The foreign trade was limited, Russian and American qualities selling at a reduction of 1s. per qr. Cargoes afloat were, however, fully as dear, and found a ready sale. The country trade this week was of a heavy character, with few exceptions. There were Lyon, Hull, Leeds, Rochester, and Bury St. Edmund's; but Bristol, Newbury, Boston, and Barnsley were severally 1s. per qr. lower, Liverpool giving way on Tuesday 2d. to 3d. per cental. Edinburgh and Glasgow yielded 1s. per qr. with but a slow sale at the decline. Dublin was extremely quiet, and without quotable change in values.

On the second Monday the English supplies were somewhat lessened; while those from abroad were increased. The exhibition of samples from the near counties was again scanty: but the daily reports from the country and plentiful arrival of foreign determined millers to hold off till they had secured a decline of 1s. to 2s. per qr., and even then the small quantity offering was not cleared. The foreign trade was quite on a small scale, and holders found it necessary to make a concession of 1s. per qr. on all qualities, in order to make sales even in retail. With but few floating cargoes unsold, prices were unchanged. The example of London was followed throughout the country, there being a slow trade at 1s. to 2s. per qr. reduction at Stockton, Melton Mowbray, Newcastle-upon-Tyne, Worksoop, &c.; but a greater number did not yield to the same extent, reporting the decline only 1s. per qr., and a few were only dull, with rates unchanged—as Hull, Sheffield, Chichester, Bristol, and Gloucester. Glasgow and Edinburgh were each 1s. per qr. lower. Dublin stood out for former prices; but no progress could be made without some concession.

On the third Monday there was a moderate arrival of English wheat; but the foreign supplies were somewhat less. The show of samples on the

Essex and Kentish stands all through the morning was small; but millers were very careless about making purchases till towards the close of market. Some factors gave way, offering their runs at 1s. per qr. decline, when only a portion was disposed of. The foreign trade continued extremely quiet, and some of the recent arrivals from America being very inferior to the previous shipments they were offered at 2s. per qr. decline without a clearance. No difference of value was noted in the better qualities. Floating cargoes offering were so few in number that the former rates were maintained. It was again a dull trade in the country markets, though offers were not plentiful, many being engaged in wheat-planting. In the majority of instances no difference in prices was noted; but some places gave way 1s. per qr., as Hull, Barton, Spalding, and Market Harborough, while others noted a reduction of 1s. to 2s. per qr., as Oakham, Bourn, Market Rasen, Melton Mowbray, and Rochester. Liverpool was quiet, excepting for white wheat, which went off freely for export at previous rates. Glasgow was quite depressed as to Scotch samples, accepting a decline of 1s. 6d. per boll, and on foreign of 3d. to 6d. Edinburgh was down 1s. per qr. on all sorts. The supply of Irish wheat at Dublin being short, it went off well at fully former rates; but foreign sorts tended downwards.

On the fourth Monday the English arrivals were moderate, and those from abroad were fair. The stands of the Kentish and Essex factors exhibited but a poor show of fresh samples; yet there was great quietness in the trade, especially for white samples, though fine red were rather more in request, but no advance on former rates could be realized. The foreign business was very limited, and scarcely anything was doing, excepting on fine Russian qualities, which commanded fully former prices.

The imports into London for four weeks were in English qualities 29,758 qrs., in foreign 96,330 qrs., against 35,948 qrs. English, 97,773 qrs. foreign for the same period last year. The London averages commenced at 58s. 11d., and closed at 56s. 1d. The general averages opened at 53s. 7d., and ended at 53s. 8d. The imports into the kingdom for the four weeks ending October 17th were 2,501,887 cwt. wheat, 316,350 cwt. flour. The exports from London during the month were 1,045 qrs. wheat, 475 cwt. flour.

The flour trade all through the month has been heavy, with some decline in country-made sorts, which have been very abundant—say, 1s. to 2s. per sack. To sell foreign sacks would have required a similar reduction, though stocks were not large. American barrels were by no means abundant; yet the moderate recent arrivals were enough to lower prices 1s. per barrel, and slacken the demand. Town rates have not varied, the top price continuing 50s. per sack. The imports into London for four weeks were 83,051 sacks country-made, 4,994 sacks 2,808 barrels foreign, against 85,595 sacks country, 16,154 sacks 19,491 barrels foreign for the same period in 1867.

The supplies of maize have increased during the month; but values have improved 1s. per qr., and

the high rates of grinding barley and beans seem likely to force them still more, notwithstanding the reports of a large crop in America and immense purchases on contract from the Danubian Principalities, &c. The imports into London were 40,255 qrs., against 18,943 qrs. last year.

The supplies of barley through the month have gradually increased, but not sufficiently to meet the demand, either for malting or feeding purposes; consequently, all descriptions have advanced fully 1s. per qr., and fine medium foreign as much as 2s. per qr., with a ready sale. The best English malting has sold freely at 51s. to 52s., and grinding were as low as 29s. to 30s. to 33s. Maize being relatively cheaper, may check much further advance in the low descriptions, and the price alone of malting sorts must moderate the demand, as Revett wheat has been sold at 45s. and over for malting purposes. The imports into London for four weeks were 15,345 qrs. British, 40,761 qrs. foreign, against 10,505 qrs. British, 18,477 qrs. foreign for the same period last year. The supplies of foreign being more than double what they then were, prove how low stocks had been reduced in London.

The malt trade, slowly following that of barley, has gradually been moving upwards, and rates have advanced 1s. per qr.

The oat trade has had a twofold aspect during the month. New oats not finding favour, have declined about 1s. per qr.; while old, especially Russian qualities, have advanced about 2s. 6d. per qr., 38lbs. Russian being worth about 27s. 6d. per qr. The cause of this advance has been the late falling off from Russia, and the probability that very few more will come. As the country began without any stocks, it is even possible that high as prices are we may see a further advance in old, unless shipments of new are pressed in such quantity from the Baltic as shall serve to keep them down. Our English supplies have been nothing to what they were, and though the Irish arrivals have about doubled, this increase, together with the increase in foreign, have not been enough to meet the wants of the trade. The imports into London for four weeks were 3,093 qrs. English, 79 qrs. Scotch, 32,124 qrs. Irish, 143,151 qrs. foreign, against 21,194 qrs. English, 305 qrs. Scotch, 17,820 qrs. Irish, 107,126 qrs. foreign in 1867.

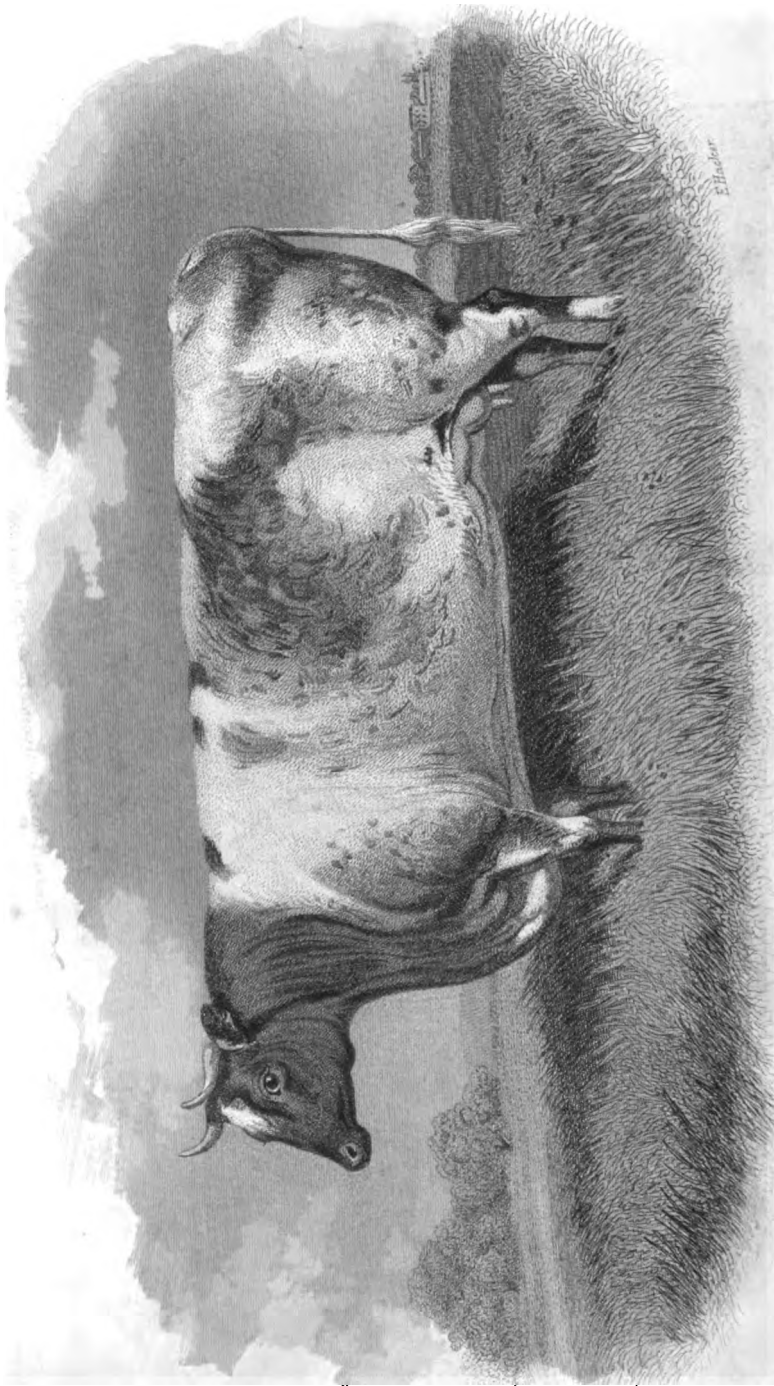
Notwithstanding the high price with which the bean trade commenced, values have been further enhanced fully 1s. per qr., so that French mazagans have become worth 47s., and Egyptian qualities 43s. Scarcely any old English come to market, and very few new, farmers probably, from their small crop, finding it more profitable to use them for pig-feed, &c., than send them to London. The probability is that they will keep dear, unless we should have such plentiful supplies of maize as to lower their relative value. The arrivals in London this month were 3,177 qrs. English, 11,915 qrs. foreign, against 5,753 qrs. English, 12,460 qrs. foreign in 1867. In Egypt they have been lately advancing.

The pea trade, though English supplies have been small, has been kept from rising by fair









*Lady Fragrant*  
 A prize cow of the property of Mr. J. H. H. of the City of Northampton  
 London, Dublin and the West of England, 1865, Stroud, 1866





## PLATE V.

### LADY FRAGRANT; A PRIZE SHORTHORN COW.

THE PROPERTY OF MR. THOMAS C. BOOTH, OF WARLABY, NORTHALLERTON.

Lady Fragrant, a roan cow, calved 28th February, 1863, and bred by the late Mr. Richard Booth, is got by Lord of the Valley (14837), out of Lady Blithe by Windsor (14013), her dam Blithe by Hopewell (10332), — Blies by Leonard (4210), — Young Broughton by Young Matchem (2282), — Broughton by Jerry (4097), — by Young Pilot (497), — by Pilot (496), — by a son of Apollo (36).

Lord of the Valley, a red bull, calved August 30th, 1856, and bred by Mr. Richard Booth at Warlabby, was by Crown Prince (10087), out of Red Rose, by Harbinger (10297), her dam, Medora, by Buckingham (3239), — Monica, by Raspberry (8475), — White Strawberry by Rockingham (2551), — by Young Alexander (2977), — by Pilot (496), — by The Lame Bull (359), — by Easby (232), — by Suwarrow (636).

Lady Blithe, a white cow, calved July 2nd, 1857, and bred by the late Mr. Richard Booth, produced in 1860 a roan cow-calf to Sir Samuel (15302), called Lady Mirth; in 1861 a roan cow-calf to Lord of the Valley, called Lady Joyful; in 1862 a roan cow-calf also to Lord of the Valley, called Lady Blithesome; and Lady Fragrant in 1863.

Beyond her head and forehead, we confess to have not been much taken with Lady Fragrant, when we first saw her at Howden; but at Plymouth, in the following year, we wrote thus: "We owe some apology to the best of them, Lady Fragrant, in whom there is an extraordinary improvement since we last saw her; and she has now developed into a really sweet animal, full of the best female character, with a pretty head and placid expression, a rare quality of flesh, and as light in her bone as a roe-deer;" while at Leicester our report runs in this wise: "One of the sweetest, straightest, and altogether most charming cows out for many a long day is Mr. Booth's

Lady Fragrant, who still gathers graces with her years, and is really ripening into perfection. Her head and 'expression' would furnish the study for a picture; and, so far as the chief prize could be concerned, there was no competition."

The Judges at Plymouth said she had "grown into a great beauty," and, to the mind of one of them, was "the most stylish Shorthorn exhibited;" as at Leicester the authorities "doubt if a better animal was ever exhibited under that distinguished name"—of Booth.

In 1864 Lady Fragrant won the following prizes: The first prize for yearling heifers at the All Yorkshire Show, at Howden; the first prize of the Cleveland, at Redcar; and the first prize at Scarborough.

In 1865 she won the first prize for two-year-old heifers at the Royal Agricultural Society's Show, at Plymouth; the first prize of the Yorkshire, at Doncaster, and the Champion Cup at Doncaster, as the best animal in the yard; the first prize for two-year-old heifers at the Durham County Show, at Durham, and the 100-guineas Challenge Cup, as the best animal in the yard; the first prize for two-year-old heifers at the Northamptonshire Society's show, at Peterborough; and the first prize of the Northumberland Society, at Morpeth.

In 1866 and 1867 there were no cattle shows; but in 1868 Lady Fragrant took the first prize for Shorthorn cows, at the Royal Agricultural Society's meeting, at Leicester; the first prize of the South Lincolnshire Society, at Grantham; the first prize of the Yorkshire Society, at Wetherby, with the £20 cup as "the best female in yard;" and the first prize for cows at the Craven Show, at Skipton, where she was one of the four animals that won the 20-guineas cup, for "the best lot in the yard."

Lady Fragrant has had two heifer-calves by Commander-in-Chief, and is now near calving to him again.

## PLATE VI.

## BLUE GOWN.

THE PROPERTY OF SIR JOSEPH HAWLEY, BART.

Blue Gown, bred by Sir Joseph Hawley in 1865, is by Beadsman, out of Bas-Bleu by Stockwell, her dam Vexation by Touchstone, — Vat by Langar, — Wire by Waxy.

Beadsman, bred by Sir Joseph Hawley in 1855, is by Weatherbit, out of Mendicant by Touchstone. He won the Derby; but his career on the Turf was not a very long one, and his stock came out in 1863, when he was credited with one winner in Mulberry, followed by Merry Wife in 1864, Caryophyllus in 1865, Arapeile, The Palmer, and Red Shoes in 1866, and Belphegor, Blue Gown, Greensleeve, and Rosicrucian in 1867. It is noticeable that, with the exception of Mr. Meredyth's Mulberry and the Duke of Newcastle's Belphegor, and one or two others which have recently appeared, all the winners are the property of Sir Joseph Hawley, Beadsman having had but very few mares beyond those of his owner, who still keeps the use of his horse mainly to himself and his friends. Beadsman's fee is now 100 guineas a mare.

Bas-Bleu, bred by Sir Joseph Hawley in 1858, ran a few times at three years old, but with no success. She threw a filly to Beadsman in 1863, another filly (that died immediately after foaling) to him in 1864, Blue Gown in 1865, a filly by Asteroid in 1866, and a filly by Thormanby in 1867; but the mare has no produce this season.

Blue Gown is a hard-wearing bay, standing close upon fifteen hands three inches high; while, to repeat ourselves, we may say, as we did of him immediately after the race, he is a little big, compact horse, that wants something more of the blood-like elegance of his half-brother and sister,

and indeed, in his appearance, takes much more after his dam than his sire's family. But he was manifestly the fittest of the three, and, in a word, all over muscle. He has a lean, knowing head, with rather lop ears, a strong neck and shoulders, and good middle. He has great powerful quarters, with remarkable width across the stifles, is short in his cannon from the knee to the ground, but not so from the hock, standing a little high behind. In temper, there never apparently was so placid a creature. When led back to the rubbing-house, after the race for the Derby, with the trainer at his head, a crowd responding to "one cheer more!" at his side; and one of the lads hanging on to his long, thin tail, he submitted with as true an air of the *vil admirari* as a dandy in a drawing-room, or one of "the Tenth" going into action. Still it had not been altogether so easy a victory, as the big "swan's eggs" on his sides went to show; but gamely had he answered the call. Bluegown, since winning the Derby, has proved that he possesses in the highest degree those great but rare essentials—pace, strength and stoutness. He can run a distance, and carry weight.

With either Rosicrucian or Green Sleeve Sir Joseph Hawley would have preferred, as he declared, to have won the Derby, as he stood so money himself on Blue Gown, and only started this colt from the favour he had found with the public—a piece of noble sportsmanship that comes in strange contrast to some of the miserable contrivances adopted over the race.

## SEWAGE IRRIGATION, FROM THE £. S. D. POINT OF VIEW.

BY CUTHBERT W. JOHNSON, F.R.S.

A few facts, which during the past season have been ascertained in the sewage irrigation fields at Croydon, are well worthy of the attention of the landowner, and of the local boards of other districts.

The reader should be aware that the large and populous parish of Croydon is formed of very different soils. It has three water sheds, which require separate drainage works, viz., 1. Part of the Norwood district, resting on the London Basin clay, which drains into the Effra Brook. 2. A larger portion of the same district, on the same formation, which drains into the River Ravensbourne. 3. The larger portion of the parish, which chiefly rests on the chalk formation, and the diluvium which forms the valley of, and drains into, the River Wandle.

It is the drainage of the town of Croydon on this last formation that the large sewage meads at Beddington

receive. This farm, of between two and three hundred acres, is let to Mr. Marriage, upon a lease, whose term is now nearly expired. Upon this highly profitable irrigated farm we have no very precise account of the amount of the profit derived, but as our board has lately taken on its own hands another small sewage-watered farm, I am able to give a tolerably accurate account of its income and expenditure.

It must be understood by the reader unacquainted with Croydon, that owing to our proximity to the metropolis and other causes, the value of the land in our neighbourhood is very high. In the case of the fields at Norwood, of which I am about to report, we have to pay thirty-six acres of a cold, hungry, stiff clay soil, £20 per annum. These are in the water-shed No. 2, which drains into the River Ravensbourne.

When we took possession of this land and had no

years since prepared it to receive the sewage of a portion of Norwood, it was let to a farmer, for a rent of £200 per annum. His term expired at Lady-day, 1868; and although he offered to renew his holding at £300 per annum, the Croydon Board of Health, on the recommendation of their engineer (Mr. Balwin Latham), resolved to take it into their own hands. Of this little farm, six acres are occupied by roads, buildings, and portions not irrigated, leaving thirty acres only in grass. When we took possession at Lady-day of this year, we found that the land was in Italian rye-grass, and that a large first crop had been already cut by the outgoing tenant.

The following account of receipts and expenditure, therefore, only includes the time from Lady-day to October the 30th. In this table the first column gives the amount received by the sale of the grass, at one shilling per rod (the purchaser cutting and carting the grass at his own expense). The second column shows the expenditure during that period for superintendence and other labour:—

1868.

RECEIPTS.		EXPENDITURE.	
April.		March.	Wages.
24 .....	£6 7	27 .....	£1 10
May.		April.	
1 .....	17 13	3 .....	1 10
8 .....	30 17	10 .....	1 10
16 .....	30 0	17 .....	1 10
22 .....	27 0	24 .....	1 10
29 .....	24 0	May.	
June.		1 .....	3 18
5 .....	29 0	8 .....	2 14
12 .....	33 0	15 .....	2 14
19 .....	32 0	22 .....	2 14
26 .....	30 0	29 .....	2 14
July.		June.	
3 .....	23 0	5 .....	2 14
10 .....	17 0	12 .....	2 14
17 .....	16 0	19 .....	2 14
24 .....	26 0	26 .....	2 14
31 .....	24 0	July.	
August.		3 .....	2 14
7 .....	21 0	10 .....	2 14
14 .....	24 0	17 .....	2 14
21 .....	23 0	24 .....	2 14
28 .....	21 0	31 .....	2 14
September.		August.	
4 .....	18 0	7 .....	2 14
11 .....	21 0	14 .....	2 14
18 .....	23 0	21 .....	2 14
25 .....	19 0	28 .....	2 14
October.		September.	
2 .....	17 0	4 .....	2 14
9 .....	15 0	11 .....	2 14
16 .....	19 0	18 .....	2 14
23 .....	15 0	25 .....	2 14
30 .....	12 0	October.	
		2 .....	2 14
		9 .....	2 14
		16 .....	2 14
		23 .....	2 14
		30 .....	2 14
		— .....	3 6
Total.....	£613 17	Total.....	£114 18

The irregular expenditure for labour arises from the fact that we have to dig our land when we need a renewal of the crop. This should be done every third year, and costs us about four pounds per acre. The Italian rye-grass for the first season or two affords five or six heavy cuttings; but after that time only about three. It must also be borne in mind that the cutting of the grass continues until Christmas. The reader must not conclude that the exceedingly dry season of 1868 has been in favour of our sewage irrigated meads, since, in

fact, the yield of grass on these meadows is much greater in rainy weather than in dry times. After the first cutting there is a strong tendency in irrigated grass to run to seed, and this inclination is the most decided in dry warm weather.

We find then, that allowing eight pounds per acre for the value of the first cutting, and only two pounds an acre as that of the cutting until Christmas, that then the gross produce of the grass from the thirty acres of rye-grass at Norwood, will be as follows:

The first cutting .....	£240 0
Cash received since.....	613 18
Produce till Christmas say .....	60 0
	<hr/> £913 18

Or £38 2s. 6d. per acre.

We may here remind ourselves that the expense of labour is the only outlay, except the rent; the sewage spreads itself over the soil, the purchasers of the grass out and carry it away.

From our own experience at Croydon, viewing the question from its essential two points of view, viz., the sanitary and the economical, we are driven to the conclusion that sewage irrigation is best adapted for grass lands. It is true that an occasional watering with sewage adds fertility to the soils upon which root and cereal crops are afterwards produced; but, then, such lands are only capable of receiving with advantage a very limited number of waterings. At certain seasons such soakages would be injurious to the crops to which we have referred, and yet the deodorising action of the plants is always required; for night and day the sewage as poured forth from the sewers must be passed over the growing crop, and thus purified before it is allowed to enter the river. At Croydon, for instance, during every four-and-twenty hours, never less than 3,000,000 gallons of town sewage are received on to the grass lands of Beddington; and this stream, although it sometimes increases to more than double its ordinary flow, never decreases—at all times, winter and summer, spring or autumn, this great stream of sewage has to be purified. Now, there are no other crops except the grasses that have the power at all seasons to accomplish such a task.

The amount of profit derivable from the sewage irrigation of grass lands at Croydon I have already given. It is hardly necessary to cite other instances of very large crops being obtained by similar means. To show, however, the effect of applying sewage to arable land, I will give an extract from a recent report from the Hon. Henry W. Petre, upon the irrigated Lodge Farm at Barking, and its crops in the year ending August 31, 1868.

He observes, "It may be well to state, with reference to the unusual dryness of the season, and consequent capacity of the land to receive a very large quantity of sewage, that my object has been to use such a quantity of sewage as could be profitably applied to the crops, considering the sewage as an article of commerce; and whilst I have no doubt that if it had been necessary a very largely increased quantity of sewage could have been thoroughly deodorised, it is doubtful whether, in the exhausted state of the grass plants, a proportionate increase of grass could have been obtained. In addition to feeding from 50 to 60 milking cows entirely on sewage-grown grass, with most satisfactory results, two young steers have been fed exclusively on that grass from May 18. On August 7, their respective live weights had risen from 7½ cwt. to 9½ cwt., and from 6 cwt. to 7½ cwt. I now propose to detail the results of an experiment that has excited much interest. A field of 18 acres of poor gravel that was in wheat last year was sown in the following manner: 4½ acres were sown with wheat early in November, 3 acres of red wheat and 2½ acres of wh'

rough chaff;  $2\frac{1}{2}$  acres were sown in October with winter oats; 4 acres were sown in October with rye; 2 acres were planted with cabbage in October, which was taken off in March, and mangel sown in their place. This wheat was twice flooded with sewage, in March and in April, 450 to 500 tons to the acre being applied in the two dressings. This crop was cut in the second week of July, and was thrashed in the field, producing  $5\frac{1}{2}$  qrs. to the acre, weighing 68lb. to the bushel; three loads of straw to the acre. The white wheat was sold at Mark-lane, by Messrs. James and Son, on July 27, at 60s. per qr., the exceptional price of the day being 62s. The red wheat was sold by the same firm on August 8, at 54s. per qr., the market having fallen considerably during the interval. The winter oats were three times flooded in March and in April, over the whole, and over a part in June—in all, about 500 tons to the acre. These oats were cut in July, thrashed in the field, yielding 8 quarters to the acre, with three loads of straw per acre, and were valued on August 8 at 27s. per qr. The rye was flooded twice, in March and in April, in all with about 450 to 500 tons per acre, was cut in July, and thrashed in the field, yielding 6 qrs. to the acre, with three loads of straw, and was sold at Mark-lane on July 27 at 40s. per qr., weighing 57lb. to the bushel. The mangel, following the cabbage adjoining the last crop, has been sewaged three times, and the crop is now estimated at 20 tons per acre. It is unnecessary to expatiate upon these results, as it is difficult to imagine anything more conclusive as to the value of sewage as a manure for cereals, although it has hitherto been the almost universally received opinion that town sewage is not applicable to cereal crops. Before leaving these experiments, I will refer to what is almost the crop of another year. As soon as the oats and rye were removed, the land (being so hard no plough could touch it) was flooded with sewage, ploughed up, and sown with white turnips. Within the week, without any rain, the turnips were up, and they now present, in spite of the attacks of the fly, the appearance of a good early crop, calculated to be worth £10 per acre before the end of September. The results of the three-acre piece of black oats after cabbage on a poor gravel are equally satisfactory. These oats were sown in the end of March, were flooded with sewage in May and in June, in all 400 tons to the acre; were thrashed in the field on July 26, and produced 6 qrs. to the acre, valued on August 8 at 26s. per qr. A plot of ray-grass was sown in September, 1866, from which was cut 58 tons of grass to the acre during the spring and summer of 1867. This plot was ploughed up, and sown with black oats in the end of February of this year. No sewage whatever was directly applied to this crop, but from its position it may be said to have stolen a certain quantity, as the land around it was flooded, and one of the channels passed through it. These oats were thrashed in the field on July 26, and yielded 8 qrs. to the acre, valued on August 8 at 26s. per qr. I will now describe the not less interesting, but smaller experiments, tried in what is called the experimental field of the farm. A piece of ground, one-third of an acre, was sown on March 26 with canary seed, was flooded in April, and produced 12 bushels of seed. A plot of half an acre was sown with linseed, or flax, in April, was pulled in July, and yielded 8 bushels. An acre of parsnips, sown in February, was flooded twice with sewage, and is calculated in the end of August to be worth £35 per acre. A piece of potatoes, consisting of 'Shaws,' 'Regents,' and 'Rocks,' was planted on February 22, twice flooded with sewage, and produced at the rate of  $4\frac{1}{2}$  tons, 5 tons, and 8 tons respectively, being dug during the months of June, July, and August. A plot of half an acre was planted with sugar-beet, sown in April; was twice

dressed with sewage, and the crop is calculated at 20 to 25 tons per acre. Half an acre of red cabbage was planted out on April 10, was dressed with sewage three times, and sold in August at £33 per acre. Half an acre was sown in March with onions, and was sold in August for £15. This plant seems very reluctant to acknowledge the virtue of town sewage, and at some of the stages of its growth appeared likely to prove a failure. The result, however, now attained only proves that more experience is required in applying the sewage, and in the time of sowing. The different sorts of cabbage appear in strong contrast to the onions, as under all circumstances the sewage appears to suit them; and in such season as the present summer it is indispensable, its application ensuring a crop proportioned to the amount of sewage put on the land, and the care with which it is applied, as is evidenced by the following instances. An acre and a half of drumhead savoy was planted out in May, and may be valued now, at the end of August, at £35 per acre. Half an acre of cabbage, planted out in March, was sold in June for £9. In May 60 poles were planted with cauliflower, and although a large proportion of the plants proved to be of a bad description, the piece realised £4. In fact two or three floodings of sewage will ensure such a crop of cabbage as can only be obtained by very heavy dressings of farm manure, and the necessary amount of rain. Perhaps the most satisfactory result is that with the mangel wurzel, though quite expected, from the experience of the crop of last year on a smaller scale. A plot of ray-grass of about 5 acres, sown in August, 1866, and producing the following summer more than 60 tons of grass to the acre, was ploughed up in November, sown with mangel early in April—long red and yellow globe. A sprinkling of sewage was applied to start the plants, and the land was flooded in May and August; the crop is now (the end of August) calculated at 40 tons per acre."

The use of impure water on grass-land is now a modern discovery. The Egyptian cultivators, bordering on the Nile, could not avoid observing the good effects upon their crops of the turbid waters of that mysterious river. The dwellers near rivers subject to floods must in very early times have made similar observations. And in the case of sewage irrigation it was, I believe, the overflowing at Edinburgh of a large drain from that city, extending across a sandbank to the sea, that, by the fertility it caused to that hitherto barren sand, first suggested its systematic employment. The extent and value of that irrigation, since its first employment nearly a century-and-a-half since, was some time since described by the late Mr. Stephens ("Practical Irrigator, p. 72). "Edinburgh," he observed, "has many advantages over the most of her sister-cities. The large supply of excellent spring-water is one of the greatest blessings to her numerous inhabitants, both in respect to household purposes and keeping her streets clean, as well as irrigating the extensive meadows situated below the town, where the art of man, with the common-sewer water, has made even sand-hillocks produce riches far superior to anything of the kind in the kingdom, or in any other country. By this sewer-water about two hundred acres of grass-land for the most part laid into catch-work meadow, are irrigated, whereof one hundred and thirty belong to W. H. Miller, Esq., of Craigintinny, and the remainder to the Earls of Haddington and Moray, and other proprietors. The meadows belonging to these noblemen, and part of the Craigintinny meadows, or what are called the meadows, contain about fifty acres, and have been irrigated for nearly a century. They are by far the most valuable, on account of the long and continual accumulation of the rich sediment left by the water; indeed, the water is so very rich that the tenants of the meadows



lying nearest the town have found it advisable to carry the common-sewer water through deep ponds, into which the water deposits part of the superfluous manure before it runs over the ground. Although the formation of these meadows is irregular, and the management very imperfect, the effects of the water are astonishing: they produce crops of grass not to be equalled, being cut from four to six times a year, and the grass given green to milch cows. The grass is let every year by public sale, in small patches of a quarter of an acre and upwards, and generally brings yearly from twenty-four to thirty pounds per acre. In 1826, part of the Earl of Moray's meadow fetched fifty-seven pounds per acre (this was owing to the fact that in the year 1826 forage was exceedingly scarce). About forty acres of the Craigintinny lands were formed into catch-work water-meadow before the year 1800, which comprises what is called Fillyside Bank old meadows, and is generally let at a rent of from twenty to thirty pounds per acre. In the spring of 1821 thirty acres of waste-land, called the Freegate Whins, and ten acres of poor sandy soil, were levelled and formed into irrigated meadow, at an expense of one thousand pounds. The pasturage of the Freegate Whins was let previously to this improvement for forty pounds per annum, and the ten acres for sixty pounds. They now bring from fifteen to twenty pounds an acre per annum, and may be much improved. This (continues Mr. Stephens) is one of the most beneficial agricultural improvements ever undertaken; for the whole of the Freegate Whins is composed of nothing but sand, deposited from time to time by the action of the waves of the sea. Never was one thousand pounds more happily spent in agriculture: it not only required a common-sewer to bring about this change, but a resolution in the proprietor to launch out his capital on

an experiment of a soil of such a nature. One hundred and ten of Mr. Miller's meadows in one year gave a clear profit of two thousand and ten pounds. The yearly expense of keeping these meadows in repair is from ten to fifteen shillings per acre, which is more than double the expense of keeping water-meadows in repair in general; for the watering of them is not only through the winter season, but the water is put on them for one or two days together, immediately after every cutting of the grass, throughout the whole of the season."

With these facts in evidence, is it not to be lamented that the sewage of so many populous places is still allowed to pollute our rivers? that the extension of the works of the great company at Barking are suspended for want of public support? Surely it would be well if the Metropolitan Commissioners were either to advance the company, on mortgage, the requisite sum needed to carry their sewer to the Maplin Sands, or else take the undertaking into their own hands. It would be well, too, if certain vexatious and absurd restrictions relating to the construction of these works were removed, and that a little more common-sense was employed in their support. If those to whom these matters are entrusted, still fail to be convinced that, first, the public health only, and, secondly, the profit to be derived from the disposal of the sewage, are to be regarded, then the sooner they make way for others, the better it will be for our country. It fortunately happens that sewage irrigation far more than pays its own way; but if that was not the case, the improvement of the public health, and the restoration of the fish, now banished from our polluted rivers, are objects of still greater importance than even the considerable profit derivable from the use of sewage in agriculture.

## HOW SHEEP PAY.

This question presents itself very forcibly to the mind of most owners of that description of property, and but few purely agricultural topics are more freely or frequently discussed at the present time than this, in the places where those interested are in the habit of meeting. The solutions given to the question are very diverse, numbers saying that it is utterly impossible they can pay, triumphantly quoting the prices at present ruling for wool, lambs, and mutton in support of their statements, and most decidedly giving it as their opinion that sheep can never leave a profit, until their produce commands a considerably higher price in the market. Others again, whose expressions of opinion have the merit and weight with their associates, only to be gained by long experience and successful management of their own affairs, confidently assert that a flock of sheep will pay when managed properly, and that as well as any other kind of stock. The latter differ from the former in this material point, that, instead of thinking the produce of the flock exceedingly low in value, they consider it quite high enough, unless only that part of the community which are in easy circumstances are to be looked upon as consumers, and the bulk of the population excluded, which they must be if mutton is always to be kept at famine prices. As is usually the case, when opinions of exactly opposite character are held by different parties on a certain subject, the truth is generally found to be pretty nearly between the two, the matter being about balanced by adding something to the one, and slightly taking from the other. In a modified sense therefore both views are correct, the difference being made to appear so much greater than it

really is, by each party bringing forward only those arguments which bear upon and elucidate his own view of the matter which is being discussed. Thus, he who says sheep will not and cannot pay, dwells at considerable length on its impossibility when wool has to be sold for 1s. 3d. per lb., lambs at 12s. each, and mutton at 5d. per lb.; the other quickly puts wool up to 1s. 6d. per lb., lambs to 25s. or 30s., and mutton to 8d. per lb., all of which prices he endeavours to make clear are easily attainable by keeping the right sort of animals, selling at the proper time, and by improved modes of management, the latter consisting mainly in not overstocking the pastures and liberal feeding, with several varieties of food, all of a highly nutritious character. It is generally admitted that the somewhat sluggish state of the markets for sheep and their produce, and their comparatively low value when former prices are taken into consideration, is mainly attributable to overstocking. The very natural dread felt by owners of cattle when the rinderpest reached these shores caused many to sell them out, and re-stock with sheep, so as to avoid a heavy loss in the event of the plague reaching them. Those, again, who actually lost their cattle, had no alternative but to purchase sheep in their place, although it might be even for but a short time, until the disease had ceased its ravages, and the danger of infection was past. All this gave an impetus to the sheep trade, causing a demand for store animals, which the country could scarcely supply, and prices were accordingly driven up to a point much beyond their value. The scarcity and dearness of labour in many districts has also had the effect of turning the attention of many men

to sheep as a means of reducing their weekly bill, and at the same time enabling them to keep up the full amount of the gross proceeds of their farms. In numerous instances this has been overdone; and the neglect of providing sufficient winter food for the animals, under the greatly-mistaken notion that on the pastures they could eke out a living, has been undoubtedly the reason why so many people have been unsuccessful with sheep. By increasing them, and neglecting to provide extra food, the constitution of the stock became injured, they decreased in size and weight, the wool lost both in length and lustre and in value accordingly, and when, as has been too often the case, disease got into the flock, the owner has been forced to declare that sheep-breeding was a tissue of vexatious disappointments and serious losses. This is no overdrawn picture, the instances of heavy losses during the past two years being too frequent all over the country to permit of any mistake being made, or the reason of the breaking up of a flock not accurately known. The best agricultural authorities state that sheep have always been liable to great fluctuations in value, being for a few years far beyond their value, and then again for a consecutive number of years correspondingly low. When high, people who are not accustomed to the management of a flock of sheep are induced to purchase as largely as their means or extent of surface will permit; and hence when the reaction comes they ardently desire to get rid of them, and, forcing them on markets, aid in bringing about the very state of matters most injurious to their own interests.

We once heard a gentleman farmer speak largely of the wonderful advantage of stocking with sheep over every other mode of either stocking or working the land. His principal argument was the saving of labour, both of men and horses. "You purchase your stock; you have a man to attend to them; he reports to you occasionally—say, every morning; and the thing is done. If the morning or day is disagreeable there is no necessity for going out; there is not a body of labourers to look after, and therefore no expenses rising, one's mind is at ease, and there is no unpleasant interruption." When we ventured to suggest the importance of growing a quantity of green crops, on which to finish the way-going stock, and so command the highest prices going, by being enabled to hold till spring, he replied that "in that case a man became the servant of his labourers, handing them over the greater portion, if not all, of the extra cash received by their exertions." Now there is no doubt but that such a system as this does prove eminently successful on land in a high state of fertility, and possessing naturally the power of laying on fat quickly on whatever animals that may be put on it; yet as these lands are the exception and not the rule, it may just follow that any one attempting this mode of procedure may find himself seriously embarrassed before he finds it possible to resume the method of farming he has been accustomed to.

In the autumn of 1865 breeding ewes were bought up at prices far beyond their value—from £3 10s. to £4 10s. being given for animals of large size and good blood. The anxiety displayed by almost every one at that time to purchase sheep caused this enormous rise, as in reality these very sheep were not worth more than from 42s. to 50s. This, many of the purchasers have proved to their cost, the succeeding two years' produce of lambs and fleece in many cases not being sufficient to cover the first cost of the ewe; and it is questionable whether the three years' produce even will amount to the original purchase-money, when the ewe herself is sold at a considerable reduction, a contingency at the present price of ewe mutton absolutely unavoidable. Land on which sheep have been largely kept for many years to the exclusion of

other stock becomes at last so impregnated with their droppings as to prove highly injurious to the health of the animals, and very careful management is required, and a variety of food essentially necessary to preserve the flock in a healthy state. A familiar example of this is found in the lawns and wooded enclosures surrounding a gentleman's seat, sheep being usually, for various reasons, the most suitable stock for such places. The presence of a large number of trees, inducing a rank growth of sour and innutritious herbage, aids materially in retarding the progress of the stock to maturity. They are extremely liable to scour; seldom are without foot-rot; and a large proportion of the lambs come under the denomination of culls or dwindles than is the case in open land, where the sheep are not kept so constantly nor so thick on the ground, and where the air circulates freely, not permitting the fleece to remain long wet and cold and cling to their backs.

Having now glanced at the modes of management which cause loss, or at least a decreased return from capital invested in sheep, we will take a look at the other side of the question and see how loss may be avoided, and a profit made. Buying at the present price of store stock, it must surely be wretched management which would permit of a loss; in fact, one would think the animals should be starved outright if they did not leave a fair return for time, trouble, and outlay when disposed of. It is of the most vital importance when purchasing ewes to get a breed of good milking property. Let the mother be ever so shabby-looking, if she is descended from a race of milkers she will rear her lamb, or a couple of them with great ease, keeping them fit for the butcher during the whole time they are running with her, providing her own wants are plentifully supplied. The Cheviot, the Highland blackface, the South, and the Shropshire Downs all possess this quality in a remarkable degree, and are highly prized as nurses when their lambs are intended to be disposed of early. Crossed with a Leicester ram there cannot be found a happier combination of blood to effect the desired object in the shortest space of time. Many of the whitefaced breeds are very inferior milkers, and for this reason are quite unfit for the purpose we speak of; the great weight they attain to, both of carcase and fleece, rendering them valuable at a more advanced period of their existence. To instance one case where there is every prospect of payment, and that too on a liberal scale, we select a lot of Cheviot ewes; they are purchased at one of the great autumn fairs, whither they have been brought from their native hills for disposal. They are wondrously slim when brought to their new quarters, looking like lambs in comparison to the sturdy, comfortably-fleeced Leicester ram which has been purchased for crossing with them. The price of each ewe is probably from 21s. to 25s., according to quality and to the season, at which figure no great expenditure of capital is involved. The pasture they are put upon must be poor indeed if it is not better than what they were accustomed to; and with liberal treatment the bulk of the flock are likely to have twins, the whole of which being cleared off as fat lambs abundant time is given to get the ewes themselves finished and sold to the butcher at an advance on the original price. Another advantageous feature in the character of this breed is, that being small they can run thick on the pastures, and thus increase the monetary return per acre very considerably. The Shropshire Downs have of late years become great favourites, having proved themselves excellent milkers, and prime killing sheep as well. The only point in which they yield to the very best of the whitefaced breeds is in the fleece, which has neither the length of staple, lustre, nor weight possessed by the latter. This slight difference, however, is more than

counterbalanced by their greater thriftiness and hardy nature, being nearly always in good condition even although the keep they are on is but moderate.

Our view on the subject of being able to obtain a fair return from a flock of sheep, is now fairly laid before the reader, and is simple; consisting first, in purchasing animals at a low figure, so that when again disposed of there shall be no loss on the original outlay, but every prospect of an increase. Second, taking care that the breeding stock shall be descended from a race celebrated for their milking properties, so that when the sheep herself is properly nourished the lamb will be sure to obtain such an abundant supply of milk as to keep it growing and fattening at the same time. Third, crossing with a ram of the most approved breed, so that the progeny will be valuable alike for wool, weight of carcase, and early maturity. Had these requisites been attended to by many who got largely into sheep for the first time when they were lately so much run on, a fair profit would have been made in numerous instances where heavy loss was sustained, and where it was almost unavoidable, except on the very best lands, it having been absolutely impossible to clear off the ewes at more than half the original cost. The heavier breeds of sheep, such as the Leicester, Cotswold, and Lincoln, in the hands of those who hold land suitable for them, and who make it their business to attend mainly to the keeping up of a permanent flock, can also be made to return a great deal of money. When the necessary quantity of green crops is grown, and the young stock cleared off fat at the age of twelve months, after consuming a quantity of cake and corn, the farmer is reimbursed for his outlay and expenditure of time and trouble, and his land put in first-rate heart for the growth of future crops. When this system is carried on regularly year after year, and not by fits and starts, the return made by sheep, taking one year with another, is highly satisfactory. The farmer who grass-fattens and who has to clear away his stock when the pastures fail at the end of autumn, necessarily sells at a time when the markets are crowded and the price of mutton at its

lowest, so many following the same system, the profit for this reason being cut very fine.

Those who finish on turnips and sell in spring have the advantage of scarcer markets and much higher prices in consequence, and with the attendant circumstances so exceedingly favourable the management must be very careless indeed if sheep finished in this way and sold at this time of year do not pay. There is another source of profit from a flock which has made for itself a name now largely availed of, viz., the sale of the rams for breeding. The anxiety to obtain specimens from a flock which has become celebrated for hardness of constitution, early maturity, and general usefulness, and the large sums paid for them, shows most forcibly the value now attached to the procuring of good sires, and the improvement they effect on the stock they are placed with. It has been so much the habit of late years to overdo the condition of these rams when being made up for sale by pampering the appetite with every kind of nutritious food sheep will eat, and shielding them from sun, rain, and wind, that the usefulness of the animals has too often been seriously impaired. Not only this, but so much expense has been gone to in bringing them out that the extra prices obtained have scarcely recouped their owners for the hard cash invested in putting them into condition. A reaction is gradually coming about, and the most choice blood is now to be had, in natural condition, grass-fed, or at least but with very little assistance from other foods. By this judicious and sensible treatment the interests of both buyer and seller are consulted, the former in getting an extra price for his good blood, which thus becomes all profit, and the latter instead of laying out good money on an unwieldy mass of fat, gets a useful animal, active and lively, able and quite satisfied to subsist on the food which supports the other members of the flock. An average of several pounds less on each animal becomes in this way better payment therefore than the same amount of increase when it was obtained purely through giving the unfortunate animals an unlimited supply of rich food.

J. S.

## THE VALUE OF SEED CAREFULLY GROWN.

We recently had occasion to refer to the influence of seed upon the growth of the root crop; but the degeneracy of seed demands some fuller notice than we were then able to give to it. Important as it has been shown to be in relation to these particular crops, its influence extends over a far wider field of action. In the growth of the corn crops the importance has long been recognized, and the general practice has been guided with due consideration thereto. The connection is much more evident between the seed sown and the seed produced therefrom, than between the seed and the herbage or bulbs which may be grown from it. Although the connection is less evident, it is not the less real, as in both cases the habit of life and the constitutional character are conveyed from the seed.

In the selection of seed for a corn crop many circumstances are taken into consideration, such, for instance, as the variety, the soil upon which it has been grown, and the climate of the district in which it has been cultivated. These details of growth are inquired into with commendable zeal, and by the discretion shown in selecting the best sort of seed the ultimate result is very much regulated. It is true that so far as variety extends some inquiry is usually made prior to the purchase of ordinary agricultural seeds; but how far does the consideration of

soil and climate generally extend? Practically it is overlooked, and yet it is well known to be as influential upon root and fodder crops as upon corn.

The question naturally arises, Do the soil and climate affect the selection of seed-corn, and does any practical advantage result from the care thus taken? The reply will be unanimously in support of such discretion, because of its well-known effect upon the quality of the corn, and the general vigour of the plant. This probably arises from the growth being more perfect under certain conditions of soil and climate than under others. We are perfectly familiar with such occurrences as white wheat being sown upon certain farms, and the farmer is not able to use even his own seed without danger of it losing its character; whilst on other farms the home-grown seed may be used once, but cannot safely be repeated. So also Scotch oats have been received from their own district, and used with great success; the produce of the same employed with a lesser benefit, but the use of succeeding growths no longer considered advantageous. Instances might be increased indefinitely to support the value of the practice of selecting seed-corn with due consideration to soil and climate.

We have every reason to believe that similar care is desirable in the selection of all farm seeds, and that it

will materially promote successful cultivation if prudent measures are adopted to secure a vigorous constitution, high-feeding character, and powers of steady growth. Very much more may be done in this direction than would at first sight appear probable. As an example of each of these conditions being successfully secured, take the several varieties of turnips and swedes grown, and they illustrate most fully the control which man can exert by cultivation upon the plants he takes under his care. We do not purpose noticing at this time the effect which good and bad management have exerted upon our root crops, further than to remark that they afford us some of the best illustrations of what the judicious cultivation can do, and what is done by those who grow their crops from seed which has been purchased regardless of its history.

The same prejudicial influence extends to other crops. Take, for instance, our clovers; and it must be admitted that the cases are very exceptional in which due care is taken as to the growth of seed. We know that where such care has been taken an abundant recompense has been gained in the luxuriant and healthy growth which has followed. Is it any surprise that complaints should be constantly arising that the clovers fail during the winter months when no care is taken to secure such a hardy growth as shall be capable of withstanding the severities of climate and other hardships with which the plant has to contend? We do not attribute the failure of the clover plant entirely to this cause, because we are well aware that there are several other circumstances which act in the same direction. At the same time we do not hesitate to urge the great importance to be attached to the constitutional character of the seed. A neglect of this consideration has already produced, and probably will continue to produce, disappointment and loss, against which we desire to guard our friends. It will be readily acknowledged that the question of climate is rarely considered in the purchase of cloverseed. It may be English, or it may be foreign seed; it may be grown in a warm climate, or the opposite. Its cultivation may have been such as was best calculated to produce a heavy crop of seed, even with a delicacy of habit which is totally

unprepared to grapple with the rigour of severe winter weather. The winter and spring vetch very well illustrate this change, for it is well known that winter vetches of hardy character can be so cultivated that they shall lose that strength of constitution, and become unfit for exposure during the winter months. The same thing happens with a considerable quantity of our cloverseed, and much of the plant dies off in the winter simply because we have purchased seed regardless of the circumstances under which it may have been grown.

We have scarcely yet realized the real difference in the value of seed grown under proper care and management, as compared with seed produced without regard to the circumstances which influence its successful employment. The time will come when we shall appreciate more highly than we now do the labours of those who are promoting their improvement. At one time the principles of animal life were equally disregarded, and it was commonly held that so long as an animal was got into breeding condition it was a matter of perfect indifference how the result was arrived at. We now regard a person holding such views with feelings near akin to pity; but it must be acknowledged that we are too generally overlooking similar principles in reference to vegetable life: these agencies are equally influential in their respective provinces, and the time will come when we shall regard the indifference now so generally existing in reference to the growth of seed with feelings of astonishment and surprise.

So long as the course of procedure is of a retrograde character little need be said about progressive improvements; but it is perfectly clear that when the cultivation of farm seeds receives that attention and judicious care of which they are worthy, that we shall soon advance, and produce those improved varieties which yield the most nutritious food under the special climatic peculiarities of different districts. The influence of such progress would be important in its bearings upon agriculture. Not only shall we thus secure seed possessing that constitutional strength which local requirements render desirable, but we shall economize the labour and expenses of the farm by producing upon each acre of cultivated land an increased amount of more valuable food.

## HOW TO FEED LIVE STOCK DURING THE WINTER.

The following interesting discussion took place at the recent meeting of the Morayshire Farmers' Club. Provost Grant, of Elgin, announced the subject for discussion as follows: "Turnips and straw being very scanty crops this season, what system would members recommend for carrying their live stock judiciously and economically through the winter?"

Mr. WALKER, Leuchars, said he would suggest that farmers should be very careful in the beginning of the season in giving their cattle straw and turnips. He would not starve the cattle, but he would deal out turnips and straw very carefully. As a substitute, or auxiliary, when the turnips ran short, he knew nothing better than a little oilcake, say a pound or pound and a-half a day. He had tried nothing else than that.

Mr. MACKESSACK, of Ardlgy, said he did not quite agree with Mr. Walker about giving the cattle short allowance about this time of the year. They must go on feeding the cattle from their infancy; begin by milking a calf well, and keep it on. The way in a year of this kind was to give each day some little extras, such as oilcake, bean-meal, rape-cake, &c. No doubt, there was plenty of feeding stuffs to be got in the country, to keep their cattle in good condition. There was no use in giving a full supply of straw and turnips. He had a pulping machine, and made pulp with straw and turnips and bran, or any other available material. He found it good for young stock, but not for bullocks. This

season he would be like an old farmer in the vicinity of Forres, who, when asked by a gentleman what shift he farmed upon, replied, "Deed, air, every honest shift." He would accept every honest shift to get their stock through the winter.

Mr. WALKER, Ahtyre, said that, to begin with, this was a very serious and difficult question. Yet there were few seasons on which they had had such an opportunity of facing their difficulties as this. Up till now, the 11th November, they had been able to keep their stock in the fields. There was, however, a long winter before them, and it would, no doubt, be difficult for many of them to get comfortably through it. Like Mr. Mackessack, he had tried pulping turnips, and mixing them with chaff and cut straw, and when the mixture got a little heated, gave it to the cattle. The stock had certainly done very well upon that. A much smaller proportion of turnip than they would have used otherwise had served them. The expediency of pulping seemed to him to be a question of power. If they had plenty of water power at hand, they could pulp cheaply; but if they had not water power, he questioned very much whether pulping could be done to advantage. With water power and a pulping machine, a farmer could face a winter of this kind with much brighter prospects than without these aids. He rather doubted Mr. Mackessack's remark that there was plenty of food to be got, though he covered it with a rider that every honest

should be adopted. Mr. Mackessack seemed to expect that a man should buy oilcake and such like for stock. He questioned very much if that would pay; although if given in small quantities as an auxiliary, it might do for a time. He thought that this would be one of the most useful meetings they had ever had, if they were able to arrive at any general conclusion as to how they could adapt their limited supplies of feeding stuff upon the farm to meet the necessities of the winter.

Mr. Ross said that, in a season such as this, he called in the aid of bean-meal, oilcake, and other extra stuffs.

Mr. GRANT said his attention has been directed to saving corn in the feeding of his horses. He had used potatoes and straw, both cut very small and well mixed. He gave the horses two feeds of corn and a feed of cut potatoes and straw each day. He used the potatoes fresh, and he might mention that they were American globes, a very productive variety. The other day, when digging them, he picked out two potatoes from the produce of one stem which weighed 5½ lbs. He would not give his cattle potatoes and straw at this season of the year.

Mr. YOOZ thought this a difficult question to deal with, and one of the very greatest concern to the farmers in Morayshire. Last year he had a small crop of turnips and a large crop of straw, and he felt inclined to use a pulper. He made inquiries, and the result was that, from the number of hands required to be employed, and the want of power, he could not have pulped profitably. He had no power except horses or steam, and he found it would be better to use an extra quantity of oilcake, and leave the pulping alone. He believed, where there was a supply of water, pulping would be profitable; but where they required to employ horses or steam it would not be profitable. This year his crop of turnips was unfortunately worse than last year, and he had less straw. His mode of feeding was to give the store stock an allowance of rape-cake, cotton-cake, beans, and bean-meal. He gave them from 2½ lbs. to 3 lbs. a-day of that, with plenty of straw. For his feeding stock he had bean-meal, linseed-cake, and oilcake. All his stock were doing first-rate. Of course these extra stuffs were a considerable expense, but he could not help that. If they could get their stock disposed of at a fair price, in such a season as this, it would be well to sell them early, but the markets for store stock had been so wretched that it was useless for a man who could pay for extra food to sell them. He thought the cheapest way was to give them rape and cotton-cake, and as much straw as they could take. He had also used potatoes pretty considerably. Small potatoes he gave to cattle, sheep, and horses. They helped very well, indeed, if used judiciously. The potatoes for cattle ought to be pulped or sliced, and given in small quantities at a time. If given in large quantities they caused swelling, but if they did not give too many of them they would find the cattle graze well after them. In using potatoes, they had to consider that they were perhaps two or three times as nutritious as turnips, and if the animals got as many potatoes as turnips, they would not thrive well, nor eat grass after them. He thought they should not force potatoes into the market in the meantime. They would find that potatoes at 50s. a ton were as cheap food as any cakes they could get. He had a large quantity of potatoes, and he intended to keep them unless the prices rose.

Mr. GEDDES, Orbliston, quite agreed that this was a very important discussion, and a question very difficult to decide. It must be admitted that in Morayshire this year they had very scanty crops of turnips and straw. The great difficulty, therefore, with men situated as he and others were, with large breeding stocks, was to get them through. Where there was a feeding stock, such as he had on some of his places, there was not so much difficulty, because he thought everybody would agree that rather than buy food at a risk, it was better to sell the stock. But, on the other hand, if they had a number of young valuable stock, which, on account of their blood, would assume a value, it became a question how they were to get them through. He had himself seen a little of pulping, but not upon his own farm; for, although he thought of trying it on account of his limited crop of turnips, he was deterred from doing so by the want of water. His friend, Mr. Maclean, on his farm of Westfield, had had a pulper at work for three or four years. He had obviated the difficulty of a want of water power by having a small donkey engine, which consumed a small quantity of coals, which was not very difficult to keep in order, and which was very easily managed. He found that, by steaming once every two days or three times a-week, he

could get on very well. The pulped food was found very beneficial for small stock; although he could not go into the matter minutely, neither, he believed, could Mr. Maclean, although he knew he would be able to do so by-and-by, as he was testing the weights. He knew, however, as a general result, that young stock were carried through at a much less expense upon pulped food than they could be upon turnips alone. On the other hand, he did not approve of giving pulped food to larger cattle, unless they were to accompany it with grain or cake. He had always observed that large cattle, fed upon pulped food, were not making the same progress as upon turnips alone. He did not see that the mixing of turnips and straw did well with large cattle, unless a quantity of cake were also given. He lately came into contact with a friend in Aberdeenshire, who was the first man he ever heard talk about pulping; and he went to meet him, to see whether he was satisfied with the system. From the time that gentleman spoke to him first on the subject five years had elapsed; and he put the question, whether his friend was equally well pleased with the system? His friend was one of the best farmers in Aberdeenshire; and he declared, after the experience of so many years, that he was equally well satisfied with it. He had been working by water-power; and the result was, that he found a given extent of turnip-crop and a given extent of corn-crop would keep a much larger number of young cattle than it did before pulping was commenced. He more particularly recommended it for milk-cows, and mentioned as a proof of this that, when anything went wrong with the pulper, which prevented it being wrought for some days, and the cows were consequently put upon turnips and straw, the diminution in the quantity and quality of the milk and butter was very great. (The Chairman: "Nearly one-third.") He had stated these circumstances which he had become acquainted with regarding pulpers, as tending to throw light on the question. There was, however, a great deal in what had been said about the necessity for water-power in pulping profitably. Rather than use a big engine, he believed it would be cheaper to use cake. He was satisfied that, where they could use water-power, or where they could employ a small donkey-engine, they could bring on a much larger number of young cattle by pulping than without it. Of course, pulping and straw-cutting must go together. The great question with him was how to carry his stock through the winter economically and judiciously, because they must carry them through judiciously, the starvation system being the worst thing possible. Failing the pulping of turnips and straw, he thought there was nothing left but to go in for cakes, buying them in the cheapest way they could.

Mr. YOOZ said there was one thing to consider, that, as they used a larger quantity of cakes, their manure was better.

Mr. GEDDES said he had a conversation with Mr. Cooper, Spynie, who had been using a pulper for some years, and who expressed himself as quite satisfied that he could carry through his young stock at much less expense than upon turnips and straw alone; and that in a year such as this, he could turn a scanty crop of turnips and a scanty crop of straw to much better advantage by pulping with the aid of water power.

Mr. WILLIAMSON, Shempton, said he never had a pulper. He had a conversation that afternoon with Mr. Cooper, Spynie, who regretted that he could not be present at this meeting, because he would have been able to tell them that he thought the pulper a great advantage. He did not think the want of water should be a very great objection after all, because he would make one or two of the cattle that were to get the food drive the pulper, and he was perfectly convinced they would thrive with the work as well as any bullock in the byre. Of course, the extra hands that were required came to be a great consideration. If they required to employ extra hands, and paying attention to the manure heap, as Mr. Yool suggested, it was very doubtful whether it would not be better to buy extra cake. In such a year as this, fat cattle were very dear, and his impression was to hold on what was best fitted to bring them to maturity, and sell them off a month or six weeks earlier than usual. If they thus pushed on what was to be ripe and got clear of them early, there would be a greater quantity of keep left for the young stock that must be kept on.

Mr. WALKER, Altyre, said that since he spoke a new feature in the question had presented itself to him. A pulper in full swing would pulp turnips as fast as any two women could throw them into it. The expense of their labour would be

very little. They would find wheat and barley chaff about a farm which would be sufficient to mix about two-thirds of the food required, and that would be a great saving in straw. The cost of hands to work the machine would be comparatively nothing: it was the want of driving power that was the great drawback. A woman employed one-half of her time, along with the cattleman, would keep the machine cutting.

Mr. MACKESSACK said that a man and two women pulped as much food in one hour as did for two days for from 20 to 25 young cattle. He did not give it to his fat stock. He mixed the turnips with chaff, and he had as much of it on the farm as enabled him to do without cutting straw at all. He cut off the sandy roots of the turnips, but he pulped the tops.

The CHAIRMAN said he had not much experience, but he had been very much interested in the discussion. He had been using a pulper for the last two years, and could tell them how he wrought it to feed about 30 cattle. The time occupied at the machine did not exceed two hours a day. He employed two men and two women in working it, and he found that it did not incur any additional expense for hands. The women threw the turnips into the machine, and one of the men attended to the straw-cutter, which is combined with the machinery of the pulper, and cuts as much straw as is sufficient to mix with the turnips passing through the pulper. The other man, the cattle-man, drives out the turnips and straw as they come from the machine, mixing them as regularly as possible. They generally cut as much as will serve about 30 cattle for two days, in two or two and a-half hours. The

pulping was always done in the morning, and the women employed their time in pulling turnips or other work, and the men attended to their ordinary duties about the farm. He used water-power alone. He stored large quantities of turnips at a time in the vicinity of the machine, so that they might be kept going a month or six weeks, if necessary. He had adopted a new plan this season. Draft, which he had in quantities, commanded a high price this year compared with ordinary years, and he thought it too expensive to give to his cattle. He had disposed of his draft, and gave his cattle as many turnips as they could eat, along with ten gallons of wash. He found they took it greedily. Of course, farmers had not wash to give, and he gave his evidence on the question under discussion apart from that. He thought, where they had water-power, and could cut the turnips and straw with the ordinary hands on the farm, it was an advantage to have a pulper. They could economise more with it than in any other way. He thought it seemed to be the feeling of the meeting that if it was necessary to economise this year in every way that it could be done; and that, while various plans had been mooted, the plan of pulping turnips and cutting straw, and feeding off as early as possible, particularly where they had water-power to pulp and cut the straw, was preferable to all others. With farmers who had not water-power, it came to be a question of comparison in figures, whether it was better to pulp by other means more expensive than by water, or to purchase oilcake and other feeding articles. That was a matter for every one's calculation, while they must try every "honest shift" to do their best.

## ROAD REFORM, AND THE ABOLITION OF TOLLS IN SCOTLAND.

At the quarterly meeting of the Ayrshire Farmers' Club, held on November 3rd, Mr. WILLIAM MEERY, of Drumbowie, Ochiltree, read a paper on "Roads Reform, and the Abolition of Tolls," as follows:—If this paper, which I am about to read to you, and the discussion which will follow upon it, tend in any degree to arouse public attention to the subject, the end which this Club has in view will, in a great measure, have been attained. It has long appeared to me that the toll-bar system was a most expensive, cumbrous, and unfair way of raising the funds for making and maintaining the public roads; and the almost universal insolvency of the various road trusts which have that system in operation, is to my mind conclusive proof that my opinion is correct, and that the entire system is a miserable failure. In the days before railways were made, there were, perhaps, some grounds for supporting the toll-bar system, for then the through traffic between the large towns, situated it might be in different counties, passed along the turnpike roads; and on the first view of the case, it seems but fair that they who use the roads should pay for them. Now, assuming this view of the case to be correct, though not granting it, it must now be admitted that in the existing and changed circumstances many who use the roads don't pay their fair share for them; and so long as the toll-bar system exists it is impossible that it can be otherwise. Paradoxical as it may appear, it is not the less true, that the fewer the toll-bars the more unjust and unequal is the exaction, and in order to render the system as equitable as it is possible to be made, a toll-bar would require to be placed at every man's gate, or the rate should be levied at so much per mile, and every person using the roads with rateable subjects should be compelled to keep a log book, showing his place of departure and number of miles run—after the fashion of a shipmaster. It is surely a sufficient condemnation of any system, that when the nearest approach to perfection it admits of is made, it ends in sheer absurdity, and is provocative only of ridicule. They who have the management of our turnpike roads in Ayrshire have approached as nearly to the summit of perfection as is safely possible. In this county there are 172 toll-bars, or within four of double the number of Perthshire, which is the next highest county, and exactly double the number of Lanark; and it is an interesting fact, that in the counties where the tolls are most numerous the debts are largest. The revenue of the Ayrshire turnpike roads is about £17,000, or about £100 on an average for each toll-bar. Now, assuming the ex-

pense of each toll-bar to be £25, and that is the lowest estimate we have seen made—that is at the rate of 25 per cent. for collection, and the salaries of the various officials connected with the roads amount to somewhere about £1,500, or about one-eleventh of the sum collected, which is at the rate of fully 9 per cent., so that it takes nearly 35 per cent. of the income of the roads to collect it, and pay it away. In the presence of these facts it is not surprising that the Ayrshire road trusts are hopelessly insolvent. But it is surely a matter for surprise that the road trustees had not long ere now devised and adopted some more business-like and economical system. The debts on the turnpike roads, bridges, &c., in Ayrshire, amount to £140,800; of this about £86,800 is unpaid interest. Only £670 of interest was paid from Whitsunday 1865 to Whitsunday 1866, the year of the latest Parliamentary returns—which at 4½ per cent., the average interest as set down in these returns, represents a capital of only about £14,000. So that commercially considered, the Ayrshire road debts are worth only one-tenth of their nominal value. No unprejudiced person with these statistics before him can surely have the audacity to defend a system which can admit of such condemnatory disclosures being made respecting it. And I am satisfied that it is only from a groundless fear in the minds of some of the public that they would perhaps be called upon to pay more under a different system, that has prevented them hitherto from demanding to have a complete and radical change. I think it is clear beyond question that there cannot possibly be a reform of the abuses of the toll-bar system. It must be entirely swept away. Much as we are accustomed to consider ourselves in advance of the Irish in some things, they beat us completely here. There are no toll-bars in Ireland; few in Wales; they are greatly reduced in number in England; and already eighteen counties in Scotland have abolished tolls, so that there are only fifteen which adhere to the antiquated and ruinous system, and our own county figures at the top of the black list. The greatest apparent difficulty in the way to a change of system is the formidable amount of debt which was contracted, and has amassed under the toll-bar system. But the difficulty is more apparent than real; as, for example, in the case of Aberdeenshire, whose road debt was almost double that of Ayrshire, when valued it was estimated at less than one-fifth of its nominal value; and the statistics show that the debts on the Ayrshire roads are being paid interest which represents only about one-tenth of their

nominal value; so that under a different system, by paying perhaps 2 per cent. per annum more of interest than is paid at present, the debt would be extinguished in the course of say 25 years. Indeed, by the sale of the toll-houses, bars, weighing-machines, &c., a sum would be realised which would go far to pay off the debt, estimated at its present worth. The first step towards road reform should be the consolidation of the various road and bridge trusts, the abolition of tolls, having the debt valued by the Sheriff or some competent actuary, and the placing of the turnpike and statute labour roads upon the same footing and under the same management. No good grounds now exist why there should be any distinction between them, because in many instances the parish roads are now the more important of the two. One important advantage would be obtained by this change of system, viz., the improvement of those roads which are heavily burdened with debt, and whose revenues are inconsiderable. Under the present system certain portions of the debt are allocated upon particular roads, and secured over the revenue derived from the toll-rates thereon. And when these roads chance to be situated in a district where there is not much traffic, and when much of the traffic that would naturally pass over them is diverted owing to the badness of such roads, the revenues are necessarily small, and are, perhaps, barely sufficient to keep them in a passable state of repair. In such circumstances, of course, there can be no money with which to pay interest or make improvements; and parties who have the misfortune to be obliged to use these roads are compelled to pay toll upon them—when the thought that naturally arises in the mind of an unsophisticated person is that he ought rather to be paid a bonus for his temerity in risking his property, and perhaps his neck upon them. This anomalous state of matters would be entirely done away with under a change of system, because the funds would be more readily available for making improvements where these were considered necessary. Various substitutes have been proposed for the toll-bar system, each doubtless having some particular merit of its own; but the best to my mind is that proposed by the Royal Commissioners on Scotch roads in 1859, and which was given effect to in the Road Act of the counties of Elgin and Nairn. The valuation roll of the county is the basis of the system, and an assessment is levied upon owners of real property for payment of the interest for the road debt, and for making new roads, bridges, &c.; and proprietors and occupiers are equally assessed to raise funds for the maintenance and management of the roads. On the first view of the case, this plan would appear to include some parties who have no direct connection with roads, and who consequently ought to be exempted from contributing towards their maintenance. But in reality there are none who are not benefited by good roads either directly or indirectly, except those who have no property either real or personal, and there are none such except those who are upon the poor's roll. Again it is argued that this system would give great advantage to other parties who make great use of the roads—as proprietors of posting establishments, public carriers, those who keep a horse or so and vehicle, and who are perhaps either very small owners of real property, or occupiers to a very limited extent as respects rent. There is no doubt there is some force in these objections; but the general simplicity and workability of the plan otherwise more than counterbalances all these objections. Another exception might be taken in the case of pastoral farms, whose occupiers rarely use the roads, and others think that injustice would be done unless there were a classification of subjects; but in my opinion, once introduced the element of classification into the system, and inextricable confusion would be the inevitable result, as there are scarcely half-a-dozen farms or other subjects in the county but what could furnish sufficient grounds to an ingenious person to clamour for separate classification, and no practicable system that could be devised would ensure absolute and universal fairness. I would therefore urge upon this club to give its countenance to the plan of the Royal Commission as being the least objectionable and simplest of the many that have been brought forward; and the machinery already exists in most parishes for its cheap and efficient working, in the persons of the collectors of the poor's-rates. The two rates might be levied and collected at the same time, and the expense would be trifling compared to what it is under the present system. It should also be borne in mind that turnpike roads bear but a small proportion to the parish or statute la-

bour roads throughout Scotland; and these latter roads, as you all know, are maintained and managed out of monies levied from occupiers exclusively. Now, under the system recommended by the Royal Commissioners, the maintenance and management of all roads, whether turnpike or statute labour, would be apportioned equally betwixt proprietors and occupiers. So that there is no fear of the burden being heavier upon the occupiers under that than it is under the present system. Nay, there is every reason to believe that occupiers would have less to pay than they have now, and all the annoyance and inconvenience of toll-bars would be got rid of. The rate of assessment or conversion money varies in different parishes. In some parishes with which I am acquainted the rate is 3d. per pound of rental, which the occupiers have to pay in full. Now, the rate to be levied this year in the county of Wigtown for the maintenance and management of all the public roads is just 3d. per pound, and that is divided equally between proprietors and occupiers, which makes the rate but 1½d. per pound upon occupiers. We cannot hope for so low a rate in the county of Ayr, as this county is somewhat differently circumstanced from Wigtown; but there is strong reason for believing that we would not be required to pay more for all the roads than we do at present for parish roads alone, and the money which we have to pay for toll would remain in our pockets. If the change we advocate were adopted, the ratepayers would be entitled to have a voice in the management, which should be vested in a board, composed of proprietors and representatives of the other ratepayers, say one representative from each parish. But I think we should confine ourselves at present to demonstrating that a reform of the road system is urgently needed, and to impress upon the public the expediency of striving by all legitimate means to obtain a general Act, to embrace at least the fifteen counties of Scotland which are yet suffering under the toll-bar system; to legislate upon the recommendations of the Royal Commissioners; to make the Act compulsory, for were it permissive there would likely be some recalcitrant counties, and therefore much of the benefit resulting from the reform in the counties which adopted the Act would be neutralised. And it seems to me but fair that were toll-bars abolished throughout Scotland, all portages and causeway customs in burghs should likewise be abolished. But the details of the Act would have to be conceived by the framers of the Bill to suit the peculiar exigencies of the several counties.

Mr. DALGLISH (Templand) said he had been greatly delighted with the manner in which Mr. Merry had brought this subject before them. There were objections raised to every change of system that was proposed, but every objection he had heard stated to the plan of road reform set forth in Mr. Merry's paper appeared to him to be without foundation. One objection put forward was, that those who had few or no horses would, under that system, be equally taxed with those who had a good many. But if they just looked for a moment, say at the individual who kept a number of horses for hire, they would find that the tolls were paid, not by the man to whom the horses belonged, but by those who hired them. Then it was objected that people away in the uncultivated moorland districts, being so little on the roads, would have less to pay under the present system than they would have to do if their farms were taxed according to their rents. But if they looked into the matter they would see that those parties were as much interested in having good roads as those in better peopled districts. An individual for instance coming from one of these moorland places to Ayr would find it a heavy burden upon him if he had to make a road for himself all the way—in fact it would be impossible for him to do it; so that whatever would be the amount he would have to pay, it would surely be better than to have to wade through moss all the way down. For his own part he never grudged tolls provided he got a good road, and people who were of the same mind as he would never grudge a tax for good roads. One thing they ought also to bring before the country besides the reform of the revenue system, was the necessity of some improvement in the management and keeping up of the roads. From what he had seen lately in the public prints, it was obvious that in this country they were far behind their continental neighbours in keeping their roads in repair. All who were in the habit of driving at this season must have felt great inconvenience from the new metal put upon the roads. On the continent it was becoming universally the practice to have large heavy rollers of



4 or 5 tons, and weighted sometimes up to 8 or 10 tons, and these were drawn by a number of horses, so as to consolidate the new metal in such a way as to put it at once into permanent condition, and make it more useful to go upon. If they looked at a piece of road newly laid with metal they would see the wheels turning it out of its position, and the surfaceman turning it in again, this mode of dealing wearing the corners off the stones, and spoiling their properties for holding and making a good permanent road; whereas, if by a great weight it was sufficiently crushed into its position at first and then remained, how much more agreeable would it be to travel upon, and how much longer would it last? In Liverpool he understood they had adopted a roller of this sort; but instead of drawing it with horses they had adopted steam-power, and it was capable of going up gradients as steep as any they had in Ayrshire. He believed the use of such rollers would prove a great saving in the long run, and that their adoption should be immediately recommended to the managers of the roads.

Mr. CALDWELL (Knockshoggle) said he had not studied this question much, but any fears that might be entertained with regard to a change had been already well met. He was afraid that any new system that might be devised would bear unfairly on some parties. He was not sure that it would be fair to require that all the debt at present on the roads should be paid off by the landowners. If the debts were once cleared away, he thought the system proposed by Mr. Merry could be easily worked.

Mr. BONE (East Sanquhar) said he happened to be in Kirkcudbrightshire lately, and met there with an acquaintance who occupied three extensive farms. He had a conversation with him on the subject of roads, and asked how they had got along since the toll-bars were abolished. He said they were far better off than they were previously; and for his own part, he was only paying about 10s. a year more than he had been paying before for conversion money alone. He also stated that the roads were kept as well, if not better than before.

Mr. YOUNG (Highfield) said he was glad this subject had been taken up by the Farmers' Club, as he considered toll-bars a great grievance. He thought the roads could be much more cheaply kept up under the system pointed out by Mr. Merry; and farmers generally should use every effort to get the tolls done away with.

Mr. LINDSAY (Pinnore) said the system proposed by Mr. Merry was based on principles of true economy, while under the present system the expenses were out of proportion altogether to the amount of the revenue.

Mr. THOMAS MCCREATH, grain-merchant, said the present toll system was indefensible, and the only question was as to what would be the best substitute for it. He thought the mode indicated by Mr. Merry was, on the whole, the most equitable. He had no doubt there would be cases of hardship under it; but in connection with the toll-system there were as many and far more. As to the debts on the roads in this county, Mr. Merry had estimated that if they were valued according to the amount of interest actually paid upon them, they would be found not to amount to above a tenth of the nominal sum, or about £14,000 or £15,000, instead of £140,000; and when they reckoned the amount that would be realized by the sale of toll-houses and weighing-machines, the sum that the proprietors would be liable for would be very small indeed. That difficulty once got rid of, he saw no difficulty about proprietors and occupiers paying equally for the maintenance of the roads. The sum required to keep them up would be a great deal less than they were paying at present. The fact that so many counties had gone to Parliament and got Bills for themselves to abolish tolls, proved conclusively that the system they were proposing was a sound one; for the expense of getting a general Bill would be no more than each of these counties must have paid for getting a Bill for itself. He might observe that the Royal Commission, whose report they desired now to see adopted, was issued by the Government now in power, and that would be a good argument for asking them to take up the question and legislate upon it. He believed if the report had not recommended a radical change, legislation would have followed upon it long ago. When a Royal Commission reported in favour of doing a little, as in the case of the Commission on Hypothec, it led to legislation; but when it reported in favour of a thorough

radical change, no legislation followed. But if influence was brought to bear upon the present Government, they could not get over dealing with the question; and the fact of their present county member having been one of the Commissioners would do away with any charge that might be brought against the Ayrshire Farmers' Club of being "radical." There was one point in the paper he begged to refer to, that was in regard to the causeway custom in burghs. What Mr. Merry had said in reference to it was perfectly right. It was like the toll system—it had lived out its day, and there were anomalies connected with it that would warrant them in taking action to have it abolished. There were taxes which at one time might have been just and equitable, but which were now no longer so. For instance, a ton of cheese coming into the town had to pay 1s. 9d., and the taxman could not even give the name of the tax or custom which he thus imposed. It might be said that this tax was to assist in keeping up the streets; but if so, why was it that a ton of wool did not pay a farthing? Why tax one industry and not another? He believed that the origin of the tax was that once upon a time they had public weights, which was the place for turning over the cheese between buyer and seller. But long before his day that had been done away with, and although a merchant wanted his cheese weighed now by a public weigher, he could not get it done. When the weighing was discontinued, the tax should be discontinued too.

Mr. STEVENSON (Silverwood) expressed his general concurrence in the views set forth in Mr. Merry's excellent paper. He heard from friends in neighbouring counties, where they had no tolls, that the money they required to pay for the maintenance of the roads during the year was much less than he had to pay for the parish roads in this county. There might be some circumstances that might render the roads in the county more expensive to keep up; but he did not think these could be so great as to make a material difference in the amount of the assessment. He thought the employment of a heavy roller on the roads, as spoken of by Mr. Dalglish, would be a great advantage.

Mr. CLELLAN (Knockinlaw) said he knew few things that this county stood more in need of than road reform. Even if the present system of tolls was to be kept up, they were very unequally distributed. He had heard that there were parishes where there were no such things as poor-rates or tolls; but he could assure them it was not the case in the district where he lived. He had to use a road every morning, and in going two miles he had to pay three tolls, while in going in another direction he could travel eight miles and not meet a toll-bar. He believed that even though the tenant had to pay the whole of the road-rate, it would be cheaper than the present system, and more equally divided among them.

Mr. GEMMELL (Wyllieland) said he did not happen to live near a toll-bar; he had not a toll within three or four miles of him, and yet he decidedly approved of the abolition of tolls; and unless the rate was higher than 6d. in the pound on the tenant, it would be cheaper than it was at present. He said this although he lived so far from tolls, and occupied a dairy farm. He believed the proposal to levy a rate equally on landlord and tenant was the most equitable one, even for the busy and pastoral farmer. He was speaking the other day to a sheep farmer from the head of Fenwick moor, and he said he was quite in favour of the proposed system, even although he had only one horse. He could see no objection to the landlords being required to pay off the debt. It must be laid on the land sometime. It was entirely for the benefit of the estate that the roads were made, and the making of the roads improved the value of the estates.

Mr. YOUNG (Dunduff) said his opinion was that no system could be worse than the present. He thought the system proposed by Mr. Merry was an admirable one; but he would agree to any system rather than have the tolls as they are. Hitherto those who had paid the most for the roads had nothing to say in the making or repairing of them. That was a thing that ought also to be remedied. A very small proprietor had his say in the management of the roads, while a farmer who paid as much for the support of the roads as three or four of those proprietors had not a voice at all. In the meantime, however, the great thing was to have the tolls abolished.

Mr. MARTIN (Knockahinnoch) agreed with Mr. Young that they could not have a worse system than the present. If they had the tolls once swept off the face of the earth, he was

afraid but they would get a system that would work to better purpose.

Mr. KILPATRICK (Smithston) said he thought Mr. Merry had presented the main aspects of the road question to them in a very concise form. He agreed with him on a great many points; and from all he could gather he thought the statistics he had given were quite correct. With regard to representation at the Board, he thought one ratepayer from each parish would be too few. That would be all very well if there was only one proprietor from each parish; but if the proprietors and occupiers were to pay equally for the maintenance of the roads, they should be equally represented at the Board. It was felt to be a very unjust thing at present that those who paid the conversion money had no voice in expending the money. With regard to the road debt being paid off, he thought if looked at in a proper light it was paid off long ago, in the improved value of the properties which the roads accommodated. What would have been the use of the lands had the roads not been made. He believed if matters were to continue long as they were, the roads would become bankrupt; while if the debt could be dealt with in the way pointed out by Mr. Merry, the debt would be all wiped off in 20 or 25 years.

Mr. YOUNG (Kilhenzie) said a number of people were ready to ask whether they would not have to pay more under the proposed system than under the present one. The best proof they would not was that in the counties of Scotland where tolls were already abolished, it was found that the average amount of assessment was 2½d. per pound. Another thing he would say was that toll-bars were a great hindrance to trade and commerce; and if they were swept away all parties could resort freely to the roads, whether country gentlemen, traders, or farmers. With regard to the point alluded to by Mr. McCreath, he thought if they abolished tolls on the roads in the county, the corporations of towns could not for very shame continue to levy vexatious imposts for the use of their streets. With regard to the paying off of the debt, he believed the proprietors in other counties where tolls had been abolished had not objected to paying off the debt.

The CHAIRMAN (Mr. Cunningham, of Chapelton) said he thought the meeting had been unanimous in condemnation of tolls, and in favour of the system advocated by Mr. Merry. Mr. Caldwell had felt a little difficulty about the debts; and he (the Chairman) was afraid that Mr. Merry might possibly have rather under-estimated their present value; but he that as it might, he thought the proprietors would not object to pay off the debt. They got these roads made for the benefit of their own properties, and it was well known that wherever a road was made, the value of the properties increased. He knew of a case in his own neighbourhood where the turnpike road led through a village, and because a certain proprietor's lands lay off to the left, they made a new turnpike road, and accommodated them, and immediately after one farm rose £300, another £150, and another £70 a year. Nor was that an isolated case. There was no proprietor in the county who had not been paid ten times over for the money expended on making the roads through his property. He had a higher opinion of the landlords than to believe that they would refuse to pay off the debt, and he believed if a bill was brought forward they would not stand in the way. The Chairman concluded by moving the following resolution: "That the Club are of opinion that a General Road Act for Scotland should be forthwith prosecuted and passed by Government on the principles and recommendations contained in the report of the Royal Commissioners on Scottish roads—viz.: (1) The liquidation of road debt by owners of lands and heritages; (2) the consolidation of turnpike, statute labour, and bridge trusts; (3) the abolition of tolls, pontages, statute labour, and bridge money assessments; (4) the maintaining and repairing of roads equally by owners and occupants of lands and heritages; and (5) the expense of making new roads and bridges to be borne exclusively by owners of lands and heritages in Scotland, and that the owners and occupiers should be equally represented at the different local boards."

Mr. STEVENSON (Silverwood) seconded the motion, which was unanimously agreed to, and the Secretary instructed to forward copies to whoever might be the future members of the county.

## THE POORS' RATE IN REFERENCE TO THE LABOURERS' DWELLINGS.

At a meeting of the members of the Midland Farmers' Club, R. C. Chawner, Esq., in the chair, Mr. STARTIN read a paper "On the Unjust Incidence of the Poor Rate, with especial reference to its pernicious effects on the dwellings of the labouring classes;" being a continuation of the paper on the same subject read by him last year. He said it was about twelve months since the Club gave its attention to the present system of compulsory relief to the poor; and it was not quite ten months since he had the privilege of opening in that room a discussion upon the "unjust incidence of the poor rate." In the short time which had elapsed since then, the public mind had, indeed, made a very great advance towards sounder and more statesmanlike views upon this important question. It was now admitted by many of the ablest members of the House of Commons, and by some the deepest and most philosophical thinkers, that in the present Poor Laws there were anomalies and abuses which ought to be reformed; that there was injustice which demanded redress; and it was, he thought, now conceded by all those who had given their attention to the subject that the classification in our workhouses might be greatly improved—that the sick and infirm poor might be better cared for; and that a check might be given to improvidence, and pauperism ultimately be diminished, by removing pauper children to district schools, and not suffering them any longer to grow up subject to the contamination of the Union house. Mr. Startin next referred to the action of many of the Farmer Clubs and the Central Chamber of Agriculture, and to the attempts made at legislation upon the question. There was one especially pernicious effect of the poor rate that, so far as he was aware, had in all these debates and discussions only been recognised on three occasions—by a member of their own club, by Mr. Mill, in the debate on Sir M. Lopes's motion, and by Mr. H. G. Andrews, in drawing up a series of resolutions for the Somerset Chamber of Agriculture. He

alluded to the injurious influence of the poor rate in preventing or discouraging improvements in house property, and especially in the dwellings of the labouring classes. Mr. J. S. Mill, in the debate to which he had alluded, recognised the fact that the poor rate upon houses was simply a house tax in disguise. Undoubtedly this was the case; and if the question were probed to the bottom, it would be found that this poor rate or house tax might be divided into two parts: firstly, the tax upon the ground-rent, which varied greatly in amount, according to the value of the geographical position of the site on which the house stands. This portion was in the long run borne by the landlord. Secondly, the tax on the house itself, which, as he thought, was undoubtedly borne by the occupier. If they considered the subject, they would find that a house was as much an article of consumption as a loaf of bread, the only difference being that a longer time was required for its consumption in the one case than in the other. It was, therefore, perfectly clear that not only must the capital expended in the construction of the house, together with the average rate of interest on the outlay, be returned to the capitalist, but also that all rates and taxes levied during the existence of the house would fall on the consumer—that was the occupier. Now the quality of the house tenanted by the artisan depended entirely on what he could afford to pay for it; and if he were compelled to pay a very heavy house-tax, for which he received no *quid pro quo*, in addition to the genuine rent he paid his landlord in return for the capital invested, it was perfectly clear that the quality of the house he was enabled to inhabit was diminished in exact proportion to the amount of house-tax he was obliged to pay. To illustrate this by an example, let them take the case of an artisan whose wages enable him to give £10 per annum for his house. If out of these £10 he was compelled to pay £2 as a house-tax, from which neither he nor his landlord received any direct benefit,

leaving only £8 as real rent, was it not manifest that were this house-tax removed, and the whole £10 paid to the landlord as genuine rent, the latter would be able to build the artisan a better house in the exact proportion of 10 to 8, or 5 to 4? Mr. Startin adduced statistics to prove that this system most perniciously affects the poor of this town and actually imposes an income tax of about 6½d. in the pound on their annual earnings. He next read an extract from the *Lancet*, with reference to the monstrous evils, both physical and moral, resulting from over-crowding in the dwellings of the poor. In the face of such facts, was it, he asked, not incumbent upon them to remove every fiscal obstruction to the improvement of this class of dwellings? The Legislature had already removed the duties on bricks, timber, and glass, for this very purpose. That abominable tax—the window tax—although the artisan was beneath its range, for sanitary reasons had been repealed. But here was a tax upon houses in the shape of poor rate, which ranged from the peer to the peasant, but was most oppressive on the poorest of the artisan class, still allowed to remain on the Statute Book. It was not for one moment contended that the labouring class should not contribute to the support of the poor in proportion to its ability; but policy demanded that the funds for this purpose should be raised in the most just and least obstructive manner; and he was still of opinion that this could be done through the general taxation of the country. The more this question of the poor rate was examined, the more unjust, impolitic, and inefficient it appeared to him to be. Among the objections which had been raised against transferring the poor rate to the Exchequer, and so bringing income from personal property to charge; and also placing the administration of relief under the care of a Minister of State, responsible to Parliament, it had been said that real property was not entitled to any concession, inasmuch as in this country only a nominal land tax was paid, whilst in France 2-7ths of the revenue was raised from this source alone. "It may be," said Mr. Startin, "that the land tax in France is, in reality, no tax at all. It is simply a rent reserved to the State, similar to the tithe-rent charge. It represents property that has never been alienated by the State, or been in the absolute possession of the landowner. What is called land-tax here is a very different impost. In the reign of William III. this tax stood at 4s. in the pound on all real estates, offices, and pensions, and was evidently very similar to the present income-tax. The tax, at the same rate of valuation as at first imposed, continued for a lengthened period to be annually voted by Parliament, until, in 1798, Mr. Pitt made the impost perpetual, leaving it optional with the landowner to redeem or purchase on certain terms. The greater part of this tax has now been bought up and redeemed. To say, therefore, that a tax should be levied on income from real property, while at the same time income from personal property is exempt, is simply to advocate injustice. But, it is said, that real property pays no probate duty, and only a moderate succession duty. If real property has any advantage over personal estate, it ought, undoubtedly, to be taken away. It may be a question, however, whether it would not be politic to repeal the whole of the legacy, probate, and succession duties, and in lieu thereof to impose an equivalent income-tax. Real and personal property would then be placed on a par. The annual expenditure of the country would then be provided out of the annual income, instead of drawing heavily on capital, at times most inconvenient for families. Then, again, it is alleged that farming stock is exempt from fire insurance duty. At the first opportunity the duty on fire insurance ought to be repealed. Horses employed in agriculture are said to be exempt from assessed tax, whilst the common carrier is charged. This is, no doubt, unfair, and the duty on the carrier's horse ought to be repealed. It may be a question whether the proceeds of the assessed taxes on horses and carriages should not be applied towards the repair of the main roads of the country, in lieu of the turnpike system. It is also alleged that the poor rate is simply a fund in aid of wages; that the occupier of real property suffers no wrong, as he is only paying wages indirectly when he pays the poor rate. Really, this is puerile, and scarcely worth notice. Real property gives no employment to labour. The wages fund of the country, which employs labour, must manifestly be personal property, that which the political economist very properly denominates circulating capital." An objection which had some weight had been made by Earl Fortescue and Mr. J. S.

Mill. The former said in the House of Lords, that "nothing could be more dangerous than extending the area of charge beyond the area of administration, and that he looked with the greatest alarm on the agitation now going on in favour of a national poor rate. With local areas of administration, a national rate would pave the way for almost an unlimited amount of profusion and waste, and by spreading pauperism, with all its recklessness and other evils, moral and physical, would tend to the deterioration of the national character." Mr. Mill feared "that making the relief of the poor a national charge would be destructive of that economy and vigilance in the bestowal of relief which are necessary to prevent a public provision for the poor from being that source of general demoralisation which it was becoming before the reform of the poor laws in 1834." Mr. Startin went on to say: "An objection coming from so high an authority as Mr. Mill is undoubtedly entitled to the greatest respect, and I confess that it is with very considerable diffidence that I have arrived at the conclusion that the change I have advocated may be carried out with less risk of that reckless extravagance which is feared. I must, however, in the first place, enter an emphatic protest against the implied doctrine that it is the duty of one class, not only to find the funds wherewith to relieve the poor, but also to give their time in watching over its expenditure, in order that the nation may not be injured by the general demoralisation of a portion of its people. I think, on the contrary, that it is the duty of the State to carefully guard the public welfare, and that it is unreasonable and unjust to thrust this duty on a section of the community. Earl Fortescue states 'that nothing could be more dangerous than extending the area of charge beyond the area of administration.' I agree entirely with that opinion; and, so far as I am aware, that extension has not been advocated. Certainly, I for one have never proposed anything so impolitic. I have simply pointed out that the present unions, as local areas of administration, may be convenient, and that gentlemen of leisure residing in the locality, and possessed of local knowledge, may probably be induced to give their assistance gratuitously in the administration of relief. But having had an extensive experience myself, I should be the last to advocate any measure by which an irresponsible body could draw unlimitedly from a central national exchequer. As a temporary expedient to facilitate the transition, an average may be taken of the present expenditure for a certain number of years last past, and the guardians may be allowed to draw from the exchequer a fixed per centage of the average expenditure, the remainder to be a charge on the locality as at present. The Poor Law Board has now become a permanent department of the State, presided over by a Cabinet Minister. I have, therefore, but little fear that an effectual check will be given at once to any local extravagance. Besides, in what way can the local boards go to any great lengths? The necessary articles for in-door relief are supplied by public competition. The able-bodied poor must be relieved in the workhouse. There remain, then, the sick and infirm poor, and, in the words of Mr. H. G. Andrews, in his address to the Somerset Chamber of Agriculture, at Bristol, which I strongly recommend you to peruse: 'Suppose the guardians did slightly increase the relief to the sick and infirm poor, would that be an unmitigated evil?' There has been one other objection raised, which requires a word or two in reply. It is said that if you abolish the poor rate, you will simply make a present to the existing generation of owners of real property. In every case in which property has recently changed hands it has undoubtedly been purchased subject to the average rates for the time being; and, of course, in all such cases the purchaser would have an unlooked-for advantage. But in the vast majority of cases the property has remained in the possession of the same family for a considerable number of years. Charge after charge has been imposed until the present rates are enormously in excess of the rates at the time of purchase. In other cases the property has remained in the same family for many generations. Is it alleged that the State, having piled injustice upon injustice, ought now to set up a vested interest in its own wrong? Have not these owners of real property, on the other hand, a good ground of complaint against the State for its tactics in having allowed the possessors of large incomes from personal property to escape for so long a period of time their fair share of charge towards a common obligation? If, however, it can be demonstrated that the great measure that has been shadowed forth will be for the general good of the nation at large, as

objection of this kind will never be allowed to have much weight. Parliament has already, in passing the Union Chargeability Act, proved amply that the gain or the loss of individuals must be regarded in every case in which the public welfare demands that it should be so. In conclusion, I have great pleasure in saying that it has been stated to me, on very high authority, that 'the mode in which the local taxation of the country may be most justly apportioned must soon engage the attention of the reformed Parliament.' It is highly probable that a select committee of the House of Commons will have to investigate this question and ascertain and determine what portion of our local expenditure is incurred for purposes specially beneficial to the locality, and as such fairly chargeable on the local funds. On the other hand there are charges for purposes with which the locality has no especial connection—charges clearly incurred for the general advantage of the empire, and which ought in common fairness to be borne by the National Exchequer."

Councillor Lowe thought the paper was full of interest, and contained a very considerable amount of information on the great subject Mr. Startin had taken in hand. They were all agreed that with regard to rating, either locally or universally, there were many anomalies which required consideration and amendment; and he hoped the matter would now be taken up by Parliament. The question of rating for the relief of the poor was one which concerned the inhabitants of every town in the kingdom as well as residents in the country. We had in Birmingham, perhaps, one of the greatest anomalies which could be found anywhere. It was that the Corporation of Birmingham were required by Act of Parliament to send a precept to the overseers for them to collect under the head of poor-rate something like £40,000 or £50,000 per annum, which was spent upon baths, wash-houses, and lighting, and in support of the police. To his mind that was to some extent obtaining money from the inhabitants of the borough under false pretences. With regard to the dwellings of the poor, all were agreed that the time had come when some important improvement should take place in regard to them; for it was not likely that any improvement could be made in the morals of the poorer classes, if such glaring evils as Mr. Startin had pointed out of only one sleeping-room being available for several persons of both sexes was allowed to exist.

Dr. EVANS said he had paid a good deal of attention to the question of rating; but he never could make out who it was who really paid the poor-rate in the case of the compound householders. Now that the system of compounding had been abolished in Birmingham, he found that a vast majority of the landlords had not reduced their rents, and that the tenants were paying exactly the same as before, *plus* the poor-rate which had been laid upon them. The only way he could account for it was that the landlords had for a long time past been endeavouring to raise the rents, and had not seen their way to doing it, until now the opportunity had been offered, and they had dropped upon it. Another point that struck him very much in the paper was as to the poor-rate being a kind of aid to payment of wages. Of course, in the form in which Mr. Startin mentioned it, it appeared an absurd proposition; but still it was true to this extent—that where the average of wages ranked lowest, there the average of poor-rates ranked highest. Therefore the two were in a certain sense co-ordinate. When they got a high rate of wages they got a low poor-rate, and *vice versa*. He thought there could be no doubt whatever that the progress of future legislation must be in the direction of transferring a vast amount of the present local burdens to the shoulders of the general taxation of the country. He did not see how that could possibly be avoided. Of course, the great argument was the one advanced by Mr. McCulloch, and taken up by later writers, that they ought not to come upon the imperial treasury for local purposes, for the reason that, if they did, they were certain to be extravagant, and that no one would look after the money except those who had to raise it themselves. Mr. Startin had pointed out that there were a great number of fixed charges which, by no superintendence on the spot, could be diminished, and which would not be increased if they were transferred to the national exchequer, instead of the local ones. That was the line which ought to be drawn. Let all those charges which could be increased or diminished by superintendence on the spot still remain part of the local burdens, but all that

could not be affected by local superintendence form part of the burdens on the nation.

Mr. STARTIN said he could not acquiesce in such an arrangement except as a temporary expedient.

Mr. MUNZ said the great question they had to deal with appeared to be whether it was right that local taxation should rest on real property, or whether part should not rest on personal property. He could not see how it was fair or just that all the expenditure of the country should rest on property that always remained about the same value, while personal property, which was annually increasing in value, did not pay to it at all. He quite agreed with the remark that it would never do to give local authorities power to expend money from national funds, and that the idea of dividing it in the manner suggested was worthy of consideration.

Mr. MAY proposed a vote of thanks to Mr. Startin for his valuable paper. He regretted that this important question had not been taken up as a national one by all the Chambers of Agriculture. He referred to the able papers of Mr. Read, M.P., and Mr. Jasper More, M.P., and to the praiseworthy efforts that had been made in Somersetshire, where a society had been formed for the express purpose of giving expression to the national opinion on the subject. He hoped those views would be seconded by agriculturists generally throughout the country.

Mr. WRIGHT had great pleasure in seconding the motion. There could (he said) be no doubt whatever as to the great importance of the question they were discussing, and he was quite sure there was no difference of opinion as to the value of the two papers read by Mr. Startin before that Club. As regarded the first, he did not know of any paper read at any other meeting which had attracted a greater amount of attention than that one had done. He thought the Midland Farmers' Club was exceedingly fortunate in having in their ranks a gentleman so practically acquainted as Mr. Startin was with a subject that must engage the attention of the country for a long time to come. It would be a mistake, however, to suppose that the question of the weight and pressure of local rates was first mooted in that room last December; for in the metropolis and many provincial towns it had been found that the limit of local taxation had been reached, and that if any great improvements were to be carried on some new mode of raising revenue must be adopted. It would, he had no doubt, be in the recollection of some of the gentlemen present that on the 18th of February last Mr. Goschen brought the question of local taxation before the House of Commons in an able speech, in the course of which he put forth some exceedingly important statements. He said that "in every direction they saw that greater expenditure was unavoidable, and there was a desire that these improvements should be carried on not by means of imperial but out of local funds. The question then was, how could they be carried out with the present limited resources at the disposal of the municipal and parochial authorities? Were the improvements to give way to the financial difficulty, or was the financial difficulty so great that the improvements could not be had? In a great part of the country the burden of the rates was so heavy that there was little possibility of carrying out great improvements without re-casting the present system of municipal and local taxation." The point then clearly came to this—that the limit of local taxation in our large towns had been reached; and that, either by extending the areas of rating or otherwise, some alteration must be made. He thought that was sufficient to show that the question as affecting towns was pressing more severely on them at the present moment than it did on the country. There was another point in which a mistake had been made by many persons, which was that the question related to land and houses only. Now the real question was whether incomes arising from all sources should not be made to bear their fair proportion of the burdens. With regard to that town and the compound-rate, he understood that it was now the general rule to allow on the receipt of the poor-rate the amount formerly paid under the system of compounding. Coming back to the general and great question, whether the poor-rate should not be levied on all descriptions of property, if they would take the trouble to refer to Sir George Nicholl's "History of the Poor-laws," they would see that in the reign of Queen Elizabeth that principle was adopted, and they would certainly do credit to themselves if they carried out at the present day the spirit of the laws then enacted. Referring to the paper read

by Mr. Jasper More, M.P., before the Shropshire Chamber of Agriculture, he went on to say he thought that gentleman was not quite sound in his conclusions. In that paper Mr. More pointed out that the principles upon which the poor-rates were assessed in the reign of Queen Elizabeth were at the present time carried out in Scotland to some extent, viz., the old principle of assessing persons on their whole means and substance; but he remarked that although they had been empowered in Scotland, after the alteration of the law in 1845, to levy on personal property, that only seventy-four districts carried out that plan, while 499 assessed parishes had voluntarily repudiated it. He (Mr. Wright) thought it desirable that they should come to some distinct and clear conclusion on the subject they were discussing, and that Mr. More was in error in so far that he would adopt some temporary expedients instead of going at once into the whole question. He said let us rate woods and mines first, and in that he seemed to be departing from what had been agreed upon by the Central Chamber of Agriculture. What they could fairly ask for was a full inquiry into the whole question of local taxation. He (Mr. W.) thought the best course they could pursue would be to take advantage of the valuable organization which had been secured in the formation of Chambers of Agriculture, and to support, as far as possible, the views put forth by the Central Chamber. With regard to a national rate, there would undoubtedly be many difficulties to contend with; but he did not think the argument of extravagance was a bugbear which they needed to be very much alarmed at. Therefore, with a view to bring the matter to a practical shape, he thought they might embody in one the two resolutions issued by the Central Chamber during the present year, and with their permission, at the proper time, he would propose such a resolution. He had very great pleasure in seconding the resolution of thanks to Mr. Startin for his very valuable paper.

The CHAIRMAN said they were under a great debt of obligation to Mr. Startin, for the admirable manner in which he had introduced the subject of that debate; and he was glad to find that the Club, which he had been instrumental in forming, had had so good and substantial a subject brought before them. With regard to the future, it would be for Parliament far more than for Farmers' Clubs like their own to attempt to

remedy the injustice which the present system inflicted. It was for them to point out the mischief and oppression of local taxation, and it would be for the Legislature to devise the proper means for their removal. If any one attended to the administration of the Poor Laws he would find this to be the case, that whether the relief was administered at home or in the workhouse every industry, every circumstance in England, as regards pauperism, was brought forward there, and strange to say, one kind of property only had to bear the burthen of it. Why that in itself ought to draw the attention of the Legislature to the subject. Why, when every industry in England was involved in it, should one property only be charged with it? The great difficulty, if they called upon Government to supply any portion of the fund which was to support the poor, or meet other local demands, was that they must have an imperial inspector. The Government must always exercise a supervision over the distribution of such funds; and he believed the only proper way in which they could have it was by the appointment of an auditor. He believed that principle, as applied by the poor law board at the present time, was the most beneficial and practical one he could suggest.

The resolution was then put and carried unanimously, after which Mr. STARTIN briefly replied.

Mr. WRIGHT then moved: "That in the opinion of this meeting the tax raised under the name of poor rate, amounting at the present time to nearly ten millions per annum, should not be levied exclusively on incomes arising from real property, and that the subject is one that requires the early and serious consideration of Parliament." That seemed to be the practical conclusion of their discussion that day. Whatever else they required they certainly wanted the question thoroughly ventilated.

Mr. LOWE seconded the proposition.

The CHAIRMAN suggested that they should regard the question as one of local taxation simply. If they made it a question of poor rate only, they would shut out many other matters of local taxation which required attention.

Mr. WRIGHT accordingly moved the following resolution, which was unanimously passed: "That in the opinion of this meeting the general question of local taxation requires the serious and early consideration of Parliament."

## SMITHFIELD CLUB.

A meeting of the Smithfield Club was held at the Agricultural Hall, Nov. 4th, 1888; present, the Earl of Hardwicke, president, in the chair; Lords Berners, Walsingham, and Tredegar, vice-presidents; Messrs. J. Baldwin, J. B. Downing, Thos. Duckham, Josh. Druce, Chas. Howard, H. W. Keary, R. Milward, E. W. Moore, Hy. Overman, John Painter, Clare Sewell Read, M.P., W. Rigden, J. T. Senior, Rich. Stratton, Wm. Torr (trustee), J. S. Turner, and Brandreth Gibbs (hon. secretary).

The minutes of the last council were read and confirmed.

Authority was given for the necessary steps to be taken for obtaining the licence for holding the show as last year.

On the motion of Lord Walsingham, seconded by Lord Tredegar, it was resolved—"That the council expresses its opinion that all cattle exhibited at the Smithfield show should, under proper regulations, be allowed to be removed into the country at the close of the show."

The following committee were appointed as a deputation to wait on the Lord President of the Privy Council to urge the same, viz., the Stewards, Honorary-Secretary, Mr. Clayden, and Mr. C. S. Read, M.P.; and the same committee was authorized to make the necessary arrangements as to disinfesting cattle-conveyances, &c.

The council elected the judges for the ensuing show, and prepared the house-list of eight members of the Club, whom they will recommend to the general meeting in December, to succeed the eight members of council who will then retire by rotation, and will not be eligible for re-election.

A communication having been received from the Agricultural Hall Company relative to further space, the subject was referred to the following committee, to examine into the details, and to report thereon, viz., Messrs. Torr, C. Howard, Moore, Milward, and Twitchell.

The Honorary-Secretary was empowered to make the necessary arrangements for the luncheon, which the Club is to have this year in the new dining-hall adjoining the show, at two o'clock, on Tuesday, the 8th December, in place of the Club's annual dinner.

The President was requested to revise the toast-list, to make it suitable to the occasion.

The usual order was given for the silver cups to be presented by the Club to the winners at the ensuing show.

The following were elected members of the Club:—

Jno. B. Aylmer, Fincham, Downham, Norfolk.

Thos. Brown, Marham, Downham, Norfolk.

Herbert Farthing, Nether Stowey, Bridgewater.

Henry Lugar, Ingham, Bury St. Edmunds.

W. G. Nixey, Springfield, Upton, Slough.

Henry Robertson, Over Stowey, Bridgewater.

W. B. Shacklady, Upton Court Farm, Slough.

Martin Jno. Sutton, Cintra Lodge, Reading.

Alfred Jas. Sutton, Greenlands, Reading.

John Thompson, Badminton, Chippenham.

The Right Hon. Lord Vernon, Sudbury Hall, Derby.

The council determined on point of qualification submitted by the Honorary-Secretary.

The offer of Mr. Robt. Overman to lend the Club some folding hurdles, to be used by the judges during their inspection of the sheep, was accepted, with thanks.

It was resolved that Mr. H. H. Dixon should again write the report on the animals exhibited at the Club's show.

Various notices of motion were given for the next council meeting.

The council then adjourned till 10.30 a.m. on Tuesday, December the 8th, unless any business should make it desirable for the President to summons a meeting before that date.

## NOTES ON SOME POINTS OF PRESENT AGRICULTURAL INTEREST.

In the first of our papers under the present heading we proposed to take up the subject of beet-root cultivation in its manufacturing or industrial as well as its agricultural aspect, and devoted the paper chiefly to a rapid resumé of its historical points. We now proceed to discuss its practical ones.

And first, as to the soil and its preparation: The soil which gives the best results is a clayey loam, moderately tenacious. It is of the most essential importance that the soil should be rich. Poor, sandy, and cold soils give poor results in the way of crops. It must, therefore, be well manured; but care should be taken that the manure be not applied to the soil immediately preceding the sowing of the seed, for it is worthy of note that fresh manure has a very deleterious influence upon the flavour of the beet. Hence, the safest way is to manure the soil in the autumn, using well-rotted dung. An authority, indeed, in view of the effect which manure has upon the flavour of the root, recommends it as the best plan to grow the crop upon land which has previously borne a manured crop. If manure is applied to the soil in the spring, it must only be applied in the form of well-rotted dung; and where the soil is naturally compact, it is essential to have it deeply cultivated and well worked. A ploughing in winter, to cover the manure, and a second in spring, will be sufficient. If the season is dry, a good working of the roller will be beneficial. Lime and phosphate of lime applied to the soil are said to have a very favourable influence upon the quality as well as the quantity of the saccharine matter in beet. As regards the rotation of the crop, a general rule which it is thoroughly safe to follow is, not to grow it after any crop which is likely to leave decomposed roots or root-fibre in the ground: this precludes it, then, in this country, from following the clover-crop. A four-years' rotation, which continental practice has shown to be a good one, is wheat (manured) in the first year, the beet-root following as the second year's crop, oats making the third, and clover the fourth, which, as all our readers know, is a capital crop to precede the wheat which begins the rotation again. Potatoes (manured) are also used as a crop to precede the beet-root, wheat following the beet-root, thus making a three-years' rotation. It may be grown as a substitute for the mangold-crop.

The sowing season is the spring, from the middle of April to the end of May, if the seed is drilled or dibbled; but if sown in seed-bed, and the young plants transplanted, the seed will have to be sown towards the end of March or beginning of April. Very early sowing is not advisable, as the young plants are very liable to be destroyed by frosts. Transplanting is carried out to a considerable extent on the Continent, where, indeed, we must go to witness the perfection of beetroot cultivation, and generally it is successful in yielding large produce. The seed-bed should be in a spot well sheltered from the biting east or north-east winds, and should be well worked and manured. The extent of seed-bed necessary to grow the required number of plants will be from one-twelfth to one-fifteenth of such of the land destined for the main crop, if the seed is to be sown in drills in the seed-bed; but, if sown broadcast, a much less proportion of seed-bed land will be required. The sowing in drills enables the seed-bed to be kept clear of weeds, which is an important consideration. The plants should be thinned out to about one inch apart as soon as they show three or

four leaves, a good stirring and hoeing of the soil at the same time being attended to—this being repeated at the end of fifteen or eighteen days. By the end of May, the plants will be sufficiently forward to be taken up for transplanting. After rain is the best time for taking the plants from the seed-bed, as they come easily from the soil, without leaving any of the tender rootlets in it—a point of some importance. To preserve these rootlets and the plants generally from being crushed, they should be regularly disposed of in baskets—not thrown therein, or carried off to the field in heaps in any fashion. By far the best way to transplant the plants in the drills in the field is by the use of the dibble-stick, after the manner of transplanting cabbage, great care being taken to see that each plant has the earth well pressed up against it. The depth to which the plant should be put in the soil should be as near as possible the same as it had in the seed-bed; it is surprising how very rapidly the eye will enable this to be decided. It is also essential to notice that the root or tap of the plant be not doubled up in the dibble hole; if this is the case an abnormal growth will be the result. Some advocate the nipping off the extreme tap-root: this is not only a tedious, but it is an unusual practice. The reader may rely upon it, that if the tap-root was not wanted it would not be there; as it is, let it remain. Nature does not work in the hap-hazard conjectural way we do sometimes. The kind of weather, or rather the state of the soil in which the weather has left it, best adapted for the process of transplanting is much disputed; our experience, and we may say that nearly universal experience points to the condition of soil after gentle rain, sufficient to moisten and loosen it to the depth of a few inches, is the best: we have tried transplanting in all kinds of soil, and this we could invariably rely upon. We rarely ever found the plants to droop. Transplanting may also be done, and done more expeditiously, although not so well, by the plough, the plants being placed in the furrow made by the plough, a second bout of which in the opposite direction closes the earth up against the plants. The spade may also be used to open up a trench by inserting it into the soil a short depth and pressing it a little to one side; a second workman following the man with the spade puts the plant in the trench and presses the earth up against it with his foot. The distance between the plant varies from 12 to 15 inches, the distance between the rows of plants 18 to 20 inches where the horse-hoe is intended to be used for clearing the crop, 15 to 18 if the hand-hoe is to be used.

In sowing the seed in the field, the usual sowing time, which, as before stated, is from the middle of April to the end of May, three modes are open: broadcasting, rarely used on good farms, and never yielding good crops, drilling, and dibbling. Of these two last, drilling is the most expeditiously done; dibbling, although the most tedious, gives the best results, as the mowing, weeding, and hoeing can be done more readily and with greater precision, besides being capable of being begun too at an earlier period of the growth of the plant than when drilling is gone into. The variety of beet best adapted for the production of sugar is the white Silesian.

Both dibbling and drilling may be carried out either on the "flat" or with the field surface "ridged" or "drilled," as for turnip-cultivation. When dibbling is to be the mode of sowing the seed, the system of sowing on

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the flat is the best. To divide the surface into the regular distances a very simple contrivance should be adopted. A long piece of wood, sufficiently heavy, should be provided, with pegs or pins projecting from its under-surface, some three inches long; there may be five or six of these pegs in the length of the piece of wood, the distance between each being 14 to 18 inches. As the distance between the plants may be varied according to the richness of the soil—the richer the soil the closer the plants—it may be as well to have the means to vary the distance between the working pegs, which may be easily effected by having a narrow slot made in the long piece of wood in the direction of its length; and the pins may in this case be made of iron, with a projecting shoulder or boss, and the upper bolt, which is to pass through the slot, provided with screw and nut at its extremity. By means of the nut the bolt and pin may be placed at any desired distance from its neighbour. The wood thus provided with pins is to be dragged over the surface of the land, marking in its passage a series of parallel lines: by dragging the lines in a direction at right-angles to these, other lines will be drawn across the field—thus marking at the intersections a series of squares, at which the root seeds are to be dibbled in. The hole at these points may be made with an ordinary dibble; but, to prevent the hole being made too deep, a cross piece of wood should be fixed as thus, which will press on the earth and adjust the depth, which should not exceed an inch and a quarter. The following are simple type diagrams of the dibbling tools, which may be used as described:

Fig. 1.

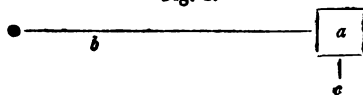


Fig. 2.

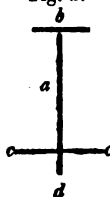


Fig. 3.

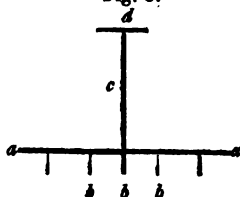


Fig. 1 represents the line-marking tool; *a* the heavy piece of wood; *b*, the handle to drag it over the ground; *c*, the teeth or pins. Fig. 2, the hand dibble; *a*, *b*, the cross handle; *c*, the piece of flat wood to prevent the point (*d*) going too deeply into the soil. In fig. 3 we give another diagram illustrative of a hand dibbler for making a number of holes at one time; *a* the piece of wood, with pins (*b b*) on its outer surface; *c*, *d*, the handle and cross. This is the form we have used, and with a little practice it is surprising what a surface of land may be dibbled in a day. When the land is thrown up into drills or ridges turnip fashion, this last dibble (fig. 3) is the one which should be used. As fast as the holes are made on the crown of the ridges, the seeds—three or four to each hole—should be dropped in by a workman following the dibbler, the seeds being covered with soil by a small broad-nosed dibbler, and well-pressed down by the end of this, or, better still, by the foot. Or a small roller may be run by hand over the drills, which will by one operation cover the seed and press the earth down firmly upon it. In both drilling and dibbling it is a good plan to place the seed in basins of water, rejecting all which float. The water should then be poured off, and the seeds allowed to remain till softened. Some allow

them to remain till germination or sprouting sets in, or is about to set in. Damping the seed gives it a good start in the soil, as it is a very hard-surfaced seed. We need say little as to the operation of drilling, which is familiar to every one. The next operation is the thinning of the plants in the dibble holes and along the tops of the drills, according to whether the one plan or other of sowing has been adopted. This thinning is a very important operation, and upon its being properly done depends the future value of the crop. Let it be remembered that the great object to be attained is to place the root under such circumstances that it will be able to grow of its usual form; all abnormal growth or deformity is a sign of, if indeed it be not a cause of, organic weakness. Now, in addition to such causes as may and do often exist in ill-prepared soil, or soil manured with fresh long straw dung, and are, indeed, the most frequently met with, one predisposing cause of abnormal or deformed growth is the crowding of two or more plants in a space where one only should grow. This can only be prevented by careful thinning, and should be prevented if good results are desired. This careful thinning, the object of which is to have only one plant growing in each space, can be done, and done only—if doing is doing well and thoroughly, as it should be—by hand; no machine can possibly thin root plants in the proper sense of the term; selection is needed; and the mind of man only can select—a machine never. We say selection is needed; for if a bunch of young plants be observed growing from the dibble-hole, or a row of them in the drill, it will be noticed that one of them at once is marked by the eye as the strongest and the best plant. Let this one, often called the “king plant,” be the one selected to be left in the soil, all others being carefully taken out. It often happens that the plant designed to be left in is much loosened in the soil by pulling the others out; in this case it will be necessary to bring up the soil about the plant, and press it firmly around it. All this, or much of all this, which we have given, as to the sowing and cultivation of the plant in its earlier stages, may seem to some to be mere trifling, the dilettanteism of farming. We, however, maintain the contrary, for reasons such as this—that the object, in view is to obtain the best produce, and that nothing should be overlooked which tends to bring about this result; that if a business is worth doing at all it is worth doing well; and if not so, it is not worth doing at all. Now, what we have recommended to be done is, we venture to say, what should be done. If the farmer thinks it will not do, it is because, as he says, it will not pay to bestow so much labour on the crop; then no more need be said. We only say this, that it will not pay, in the true sense, not to do the work properly. All good farmers are distinguished by the painstaking care with which they perform every operation; that the “kernel of the nut” lies in that one sentence in which everything is involved—“painstaking care.” But to return: The thinning of the plants should be done when the leaves attain the length of two inches or thereabouts; some say that the roots should be at least half-an-inch in diameter before the thinning is commenced. We have found this stage of growth too advanced for the thinning to be delayed to, as abnormal or deformed growth is likely to set in before this stage is reached, and to be confirmed to the root, or likely to be confirmed, which is the very point the farmer wishes to avoid.

When the thinning is done, the opportunity should be taken to weed the spaces between the plants, and to well stir up the soil between the ridges. This weeding and hoeing of the soil, so as to keep down all weeds and allow the atmospheric effects to act upon the plants, constitute the whole of the after-culture of the crop, and upon the



painstaking care with which these operations are performed depends the ultimate results. The time for taking up the roots is towards the middle or end of October, and they are known to be ready by the leaves drooping and turning yellow.

As connected with the after-culture of the crop, a good deal has been said both *pro* and *con.* as to the well earthing up of the plants during their growth. Some observations and investigations which have been made upon this point may be worthy of special notice here. Thus M. Rehring found that a beet had what we may here call zones of different value as far as regards saccharine properties. Thus, by dividing a beet into five slices or zones—each slice being cut across the beet—he found the *first zone* or “crown” (which included the top down to a point where the leaf insertion terminated) to contain 2.01 percentage of sugar; the *second zone* (being a slice varying from the fourth of an inch to an inch in thickness below the crown) to contain 3.74 per cent. of sugar; the *third zone* (constituted by the body of the root) to contain 12.07 per cent.; the *fourth zone* (made up of the point of the root, where it was about one inch in diameter, and about two inches in length) to contain 10.47 per cent. of sugar; the *fifth zone* (continuing the bifurcation of the root, together with the small rootlets) to contain 5.41 per cent. of sugar. Thus, by these experiments, we find that the first and second zones contain the smallest percentages of sugar, and that these are increased in thickness by allowing the root to protrude above the soil; the largest percentage of sugar is on the contrary contained in the third zone, being that which is or should be covered with the soil. So far we find scientific investigation in favour of earthing up the root, so as to reduce the tendency of the non-producing or least-producing parts to increase in thickness.

The next part of the subject coming under discussion brings to our mind a ludicrous story of a Lancashire man who, in bed in the winter, felt, as he expressed it, “rare an’ ill-starved,” for want of bed-clothing. After vainly endeavouring to gain the necessary warmth by heaping on his body-clothes, he at last had recourse to the bedroom door, which he took off its hinges and put on the bed, for he said, “It’s weit (weight) I want.” Now, this is precisely the position of the farmer who grows beet-roots for feeding purposes. “It’s weight he wants,” and the larger the roots the greater the weight. But directly antagonistic to this is the want of the sugar manufacturer; he wants small roots. This desire on his part is easily accounted for, because, up to the present time, the small beet generally grown for sugar-making purposes is found to possess the highest percentage of sugar. It is pretty well established amongst scientific men that the value of a root is indicated by the percentage of solid

matter which the root contains. The result of a series of experiments which were made by Mr. Sullivan, at the Irish Museum of Industry, extending over as large a number of roots as 430, showed conclusively that the smallest roots yielded the largest percentage of solid matter. Thus, roots which weighed from 5 lbs. 13½ ozs. to 13 lbs. 4 ozs., showed a percentage of solid matter equal to 8.731; while small roots, weighing from 1 lb. 12½ ozs. to 8 lbs., yielded a percentage of solid matter equal to 11.194. The difference in favour of the small roots will be more observable if we place the contrast between them and the larger roots in ordinary terms, as thus—that it takes, at the percentages above stated, 128 tons and one-fifth of a ton of the large roots to give the same amount of solid matter that 100 tons of the small roots give. In another experiment which was made in order to test the mean diminution of solid matter as the roots increased in size, the following results were obtained: 100 tons of roots under 3 lbs. gave as much solid matter as 125½ tons of roots from 6 to 8 lbs. each, and 111 tons nearly of roots from 3 to 5 lbs. each. And so far as the variety is concerned, the white Silesian beet yields the largest amount of solid matter. We noticed in a recent number of the *Mark-Lane Express* a statement to the effect that a new variety of beet cultivated by M. Hette, at Breale Oise, gives not only large results as regards weight—the cattle feeders’ desideratum—but at the same time a very high percentage of sugar. If this variety turns out to be a widely practical success, the difficulty hitherto attendant upon the cultivation of the sugar-beet will be got over, for it will on the one hand meet the requirements of the feeder, and on the other that of the sugar manufacturer.

One word as to the objection often offered as to the beet-root cultivation, namely, that it is an exhausting crop. This objection should never be met with as proceeding from one who lays claim to be considered a good practical, to say nothing of a scientific farmer. What crop, we should like to know, is not exhausting? All crops are exhausting; true, some more than others; but in the case of all it is the farmer’s business to know how to restore the balance so as to make it in favour of fertility of the soil. This can be done; and where it is not done, we fear there is good ground for holding the belief that the fault is in the farmer. On all hands it is admitted, by those who have investigated the results of systematic beet-root cultivation, that it is so far from an exhausting crop in the sense of spoiling the soil—it is precisely the very reverse, for it compels good farming; and as we begun so we end this paper with the remark, good beet-root cultivation and bad farming are quite incompatible. Into the commercial aspect of the question it is not the province of this paper to go.

## MALT AS FOOD FOR STOCK.

Malt as an article of food has had, and still has, many advocates. There are circumstances under which its value is undoubtedly great; but it must be acknowledged that the anticipated results have not as yet been fully realised. Can this want of success be traced to the malt not being as good a food as was anticipated, or to any want of judgment in its use? The Report of the Malt Tax Committee, recently issued by order of the House of Commons, contains extended evidence upon this subject, and gives additional information as to the causes which have led to the doubts entertained by some as to the value of malt as food. The recommendation of the Committee shows that the evidence given satisfied the minds

of the majority as to the increase in the value of barley by the process of malting. The agricultural witnesses, with one exception, testified to the especial advantages they had derived from the use of malt, and gave instances of its successful use, which were duly accepted and adopted by the Committee. It cannot, however, be denied that the principles involved in the action of malt as food have not been duly considered. We have little doubt but that a careful examination of the subject will tend to reconcile some of the differences of opinion which now exist upon this important subject.

The difference between malt and barley is that the former has undergone a process by which the growth of

the seed has been encouraged and then stopped. The peculiar functions of malt may be traced to the presence of a very powerful agent known as "diastase." If grains of barley are examined, they will be found perfectly free from it; but when the barley has been moistened and germination encouraged, then diastase is formed in the seed. Its production is simultaneous with the commencement of germination; and it has been discovered that its presence is essentially necessary for the growth of the seed. The diastase is a powerful chemical agent; and it has the power of converting starch, which cannot dissolve in cold water, into sugar, which is easily soluble. There is a supply of starch in barley, for the support of the germ when it commences its growth; but, as starch, it is valueless for promoting its development, because it cannot be assimilated in the process of growth; but the production of this diastase supplies food to the young germ, by turning the starch into sugar, in which form it is readily available. If the growth of the seed is allowed to proceed in the ordinary way, nourishment is thus supplied until the green leaf makes its appearance; but the diastase then disappears as suddenly and mysteriously as it first came into existence.

The value of malt entirely depends upon the presence of this body; and the process of malting, from first encouraging the growth of the barley, and then checking the growth before the diastase disappears, is eminently calculated to give a supply of this agent. In the process of brewing, the same action takes place which we noticed in the seed. The starchy particles of barley must be converted into sugar before the fermentation takes place under which spirit is formed. Unmalted barley can yield starch; but it must be malted before it possesses the power of changing that starch into sugar, and therefore this is the principal reason for carrying out the process of malting. We shall therefore more clearly understand the action of malt, if we consider it as barley possessing the power of yielding sugar instead of starch.

In the use of malt as food, it clearly has a value which barley does not possess; for, whereas starch is not taken up by the animal tissues, sugar, from being readily soluble in water, rapidly passes into the circulation, and is easily made use of in the system. In the use of ordinary barley-meal, which contains a large proportion of starch, it rarely happens that the processes of digestion are sufficiently active to enable the animal to make a full use of the farinaceous matter thus supplied. Much of it, therefore, passes to the manure-heap, which should have been added to the animal. This is more particularly the case when any animal is very highly fed, as in the case of show-stock. The use of malt instead of barley clearly avoids this loss, because the malt is sure to turn all the starchy matter into sugar, and this ensures its passing into the blood. The value of malt as food is therefore unquestionable, and especially so in the case of fattening stock or animals of delicate constitution.

This brings us fairly to the question with which we commenced, Can the want of success attending the use of malt be traced to its character as a food, or to any want of judgment in its use? The statements already made clearly show its advantages as a food, and it now remains for us to see how far there is any point connected with its use which will economise its employment. Happily on this point it can be clearly shown that there is a considerable margin for its improved use. It is a fact well known to scientific men that malt contains a supply of diastase considerably in excess of what is needed for converting the starch it contains into sugar, and there is reason to believe that it possesses an overplus of power sufficient to act upon four or six times its weight of barley. This rather points to the mixing of ground malt with crushed corn or meal, in the pro-

portions of one of the former to four or six of the latter; and thus the full power of malt is brought into play, whereas when malt is used alone we are really wasting the greater part of that power upon which its special value depends. If the powerful action of malt is to be fully employed it must be brought into contact with additional meal, flour, or food of some kind. To use malt in any other way clearly entails a loss; for the expense of producing malt having been incurred, if we allow the greater part of its special powers to pass unemployed, we certainly cannot claim credit for its economical use. Little if any advantage is gained by its use with such food as linseeds. This food contains but a small proportion of starch, for the fatty matter is present as oil, upon which the action of malt is powerless and unnecessary.

Bearing these principles in mind, it is clear that it is erroneous to state that barley contains all the valuable properties of malt. The essential value of malt is dependent upon the presence of a powerful agency which does not exist in barley; but it is equally true that malt may be—and often has been—so injudiciously used that this power is rendered valueless. The evidence before referred to shows that malt used in combination with other corn produces results of the most satisfactory character, and nothing more is necessary to show that this is the mode of employing it. The value of malt for forcing on my stock intended for exhibition has long been recognised. In such cases food is supplied very liberally, often beyond the limit which the powers of the animal system can digest and assimilate, but this is just the opportunity for showing beneficial action of malt. As we have already shown, the malt really acts as a solvent of the food, and does much of the work otherwise devolving upon the over-taxed digestive processes.

If we notice other portions of the evidence we see in the improved health of the flock, and the greatly diminished losses of the lambs, abundant inducement to lead to the extended use of malt. It has been shown that the use of malt for a short time prior to the lambing season, and for a few weeks after, has produced such an improvement in the supply of milk as abundantly compensated for the expense incurred. In like manner its action upon cows has been equally beneficial, the yield of milk being increased in quantity and improved in quality. The use of malt for calves has been exceedingly satisfactory, especially where it has been mixed with ground corn and locust beans, and made into a sort of soup. Indeed, for whatever class of stock malt has been employed—provided it has been used judiciously, so as to take advantage of its special powers—the results have been of such a character as to lead to a strong desire that all restrictions upon its production should be removed. It is, therefore, with feelings of satisfaction that we observe that the committee recommend that as the Malt-tax prevents the farmer cultivating his land to the greatest advantage, and that it obstructs him in the use of a valuable article of food for cattle, it should with justice be repealed.

The use of malt as a food will survive and surmount all the obstacles which have hitherto impeded its progress, and the time is not far distant when it will be freely used as an addition to the meal, flour, and other food given to all kinds of stock, and especially in those cases where from high-feeding or any other cause the appetite and the digestion are weak. To use it as a food apart from the opportunity of acting beneficially upon other food is manifestly impolitic, for it is creating an expensive agent to use only one-fifth of its power. The importance of the subject renders it worthy of the attention of feeders, and we shall hope to hear of many instances of its successful and economical use of malt as a food for stock.

## THE HISTORY OF HEREFORD CATTLE.

BY H. H. DIXON.

## PRIZE ESSAY.

Some are of opinion that the cattle of the county were originally brown or reddish-brown, from Devon or Normandy, and that the appearance of a white-faced bull-calf at Huntingdon in the middle of the eighteenth century, was deemed akin to a prodigy by the Tully of that day. Allusion are also found in old chronicles to white cattle with red ears on the north side of the Wye, with which the Welsh princes were wont to compensate each other for injuries, or soothe an angry king. It is also on record that Lord Scudamore, who died in 1671, introduced red cows with white faces from Flanders, which may have cropped up in the Tully bull-calf; so that, after all, the theory of some of the Hereford breeders, that the pride of their pastures and their platters have as indefeasible a two hundred years' title to the soil as the "Duchess" tribe to Stanwick Park, or the Longhorns to Bosworth Field, may be correct in the main. Old cattle-books have it that one William Town sold "nine Hereford oxen for £52" on August 25th, 1694; and then a veil, which no chronicler can lift, is drawn over their history till about 1766, when Messrs. Tomkins (who was also a great breeder of Ryeland sheep), Weyman, Yeomans, Hewer, and Tully, stood out from their fellows, as the special champions of a county breed. The late Mr. John Monkhouse, of The Stow, was, at the time of his death, in the autumn of sixty-six, the oldest breeder-link with the past. Speaking to us of 1809, when he and his trusty-cousin, Mr. Hutchinson, left Cumberland, to push their joint-fortunes on a Radnorshire farm, he thus epitomized the Herefordshire breeders, who were then giants in the land: "I found Ben Tomkins, Price of Ryall, and Smythies of the Lynch, the great mottle-face men; Tully and Knight had the best light greys; and Walker of Burton Court, Hewer, Yeomans, and Weyman, with his strong-boned tribes, were the most noted for the white-faces. We young fellows thought we should like to lay in a stock from Mr. Ben Tomkins, and so we drove over to see him. He asked us a hundred guineas—not pounds, mind you—for an in-calf heifer, to calve at Christmas, and that was all the satisfaction we had." Mr. Eyton did not commence his Herd-Book until 1845, and then the jealousy as to cattle caste between the rival breeders of the white and the mottle-faces not only went far towards jeopardising its success, but almost strangled it in its birth. The mottle-faced party seem to have brought most influence to bear, and, as Mr. Duckham has pointed out, by leading off with "Leopold" (1), and throwing back "Aaron" (82), they disarranged the whole of the numbering. It was not, however, a mere county strike of the white and mottled roses, as the dark and the light grey breeds possessed some very loyal adherents. All four had their claims allowed in the drawings on stone, and the mottle-faced "Wellington," which was sold for £283 in 1816, the dark-grey "Victory," the white-faced "Cotmore" (376)—a first prize Royal Agricultural Society's bull at Oxford—and the light-grey "Brockswood," were the chosen portraits for the first volume. Mr. Eyton did not receive any very hearty support, and resigned his task after the second volume to Mr. W. Styles Powell, who died before he had completed the third, and Mr. Duckham, the present editor, entered upon his labours in 1867. A more able Registrar-General could not have been found. The sixth volume carries the bulls down to "Zouavite" (2905), and contains entries—of which Mr. Naylor furnished 57, and the late Mr. Rea, of Monaught, 60—from no less than 231 breeders. Among them are a few names from America, Canada, Germany, Australia, Ireland, and Jamaica; but, with the exception of one in Aberdeenshire, there are no breeders further north than Shropshire and Montgomeryshire. The mottle-faces were generally supposed to be akin to the dark, and the white-faces to the light-grey; but the four varieties have pretty nearly merged into the red with white face, mane, and throat. In fact, it has been very reasonably argued from the circumstance of "a Hereford with a red ring

round his eye" being specially alluded to in Mr. Brandreth Gibbs's "History of the Smithfield Club," as one of the Show beasts in 1812, that the Hereford of that day was chiefly connected in graziers' minds with a white face. Still Mr. Monkhouse's evidence, which virtually refers to the same period, does not favour the idea that such a complete fusion of the sorts had then taken place. Those cousins-german, the mottle-faces and the dark-greys, had not many points of difference. In both of them small red spots were plentifully interspersed among the white; but in the former these spots were of a darker colour, and more on the face and feet, while the broad white stripes along the back was wanting. The horn of the dark-greys was shorter, and had more of the "Ayrshire cock," and no black tip. These dark-greys were also smaller in size than the mottle-faces, smoother in their coats—a point which Herefordshire breeders do not covet—and better both in their crops and their temper. The mottle-faces were popularly known as "Ben Tomkins' sort;" but although they made his fame at Wellington Court, he attributed much of his success to the use of "Silver" (41), a white-faced bull. The picture of that equally eminent breeder, the late Mr. Price of Ryall, which meets the eye in so many West-Midland homes, is as true an emblem of faith in the Hereford, as that of the late Mr. Frank Quartly in the "red and all red" Devon, as you roam away to the west. When the century was young, the Hereford breeders' pride was wont to develop itself in giving show-yard challenges. Mr. Meek, of Lichfield, was as unlucky in 1812, when he accepted the Ryall *def* to show a score of Hereford cows against as many Longhorns, as he had been two years before, when he himself threw down a challenge to the same amount to show single bulls, and dare not meet Mr. Walker's "Crickneck" (175). Mr. Price did not shrink from giving the Shorthorn men the same offer in 1839, with twenty cows and a bull, when Mr. Bates was flushed with his Oxford victories; but the Kirk-Levington philosopher did not come to terms, and the stipulated month passed over without any results. Mr. Ben Tomkins did not care to send cows from home on such a mission; but he offered to pitch "twenty for a hundred" against all comers at Hereford. The Rev. Mr. Smythies of The Lynch, "a singular grand divine" (so Cheviot shepherds phrase it) among Herefords, as the Rev. Henry Berry was among Shorthorns, felt anxious to show five times as many of all ages for the same sum; and Mr. Weyman was ready to bring out his white-faced bull "Stockton" (237) against All England for five times as much. Such praiseworthy pugnacity met with no response, and the breeders had to content themselves with a more solid proof of excellence, in the prices made by the herd of Mr. Ben Tomkins after his death in 1819. Twenty-eight breeding animals averaged £152, and Lord Talbot, who always stood very stoutly by the sort, gave £262 15s. for a cow, and considerably more for a bull. Long before this, Mr. Westcar, of Creslow, had set the hall-mark upon the Hereford bullocks. He is said to have first appeared at the Hereford October fair in 1779, and it was with beasts purchased there for forty years in succession that he won so many first prizes from the very commencement of the Smithfield Club Show in 1799, when cattle of all breeds came into competition, and were merely classed as light, middle, and heavy weights. He principally owed his success to the light or Tully greys, and one of his most celebrated six-year-old winners, whose dead weight was 268 stone of 8 lbs. was from this stock, and by a white-faced bull. It was some time before Mr. Tully felt quite reconciled to the fall of light-grey calves by this sire; but Mr. T. A. Knight of Downton Castle fancied them, and a tribe which Mr. Duckham has described as "smaller in size, more even and firmer in their flesh, and with an upward tendency of horn, showing that a commingling had taken place with the light and dark grey," became known as the "Knight's Greys." Some of those exhibited from the

Downton herd of late years have been perfectly white. Mr. Salwey, of Ashley Moor, was a great admirer of the light-greys, and it was with cows purchased at his sale in 1844 that Lord Berwick laid that foundation, on which he built so judiciously, with white-faced bulls from the herds of Messrs. Hewer, Carpenter, Longmore, and Williams. At his lordship's death, eighteen years later, there was only one light-grey "Lord Grey" in the herd, and Mr. Knight purchased him. The love of good bullocks is an honest prejudice which cleaves to the heart of the county. Its beef raising system is its especial glory, and farm after farm has played its part well, not only on the "home-fields" of Hereford and Leominster, and under the Norman fortress of Ludlow, but in a wider sphere each December and July, or on the Smithfield stones. It would be invidious to speak of one county-man above another, but crossing over the boundary line near Moor Court, with its quaint gables and black Cheshire cross-gartering, and its recollections of "Cotmore" (376), who could pull down 35 cwt. on the scales, we enter Radnorshire, and reach Monaughty or the Monk's House. Here for nearly half a century, the late Mr. Thomas Rea followed up what the white "Snowball" had begun, with the choicest bred sires from "Crabstock" (303) to "Sir Benjamin" (1387), and "Grenadier" (961), and won fully two hundred prizes. The late Mr. Marsh, of Elkstone, also backed up the breed well outside the county limits; and "Battersea" (1865), and five Royal Society female firsts have graced at one and the same time the Luddington herd near Stratford-upon-Avon. "Claret" (1177), "Milton" (2114), and "Lady Ash" are still well remembered names round Golding Hall in Shropshire, although Mr. Hill has quitted it; and we find old traces of "The Knight" (185), "Sir David" (349), and "Big Ben" (248), in the Vale country near Welshpool. "Wonder" (420), "Walford" (871), "Attingham" (911), "Albert Edward" (859), and "Severn" (1382), have all borne their part in the Attingham and Cronkhill pastures, which sent up in their day twenty-severn firsts and seconds to the Royal Agricultural lists. "Tom Thumb" (243), was a very favourite bull at Cronkhill, and his lordship was wont to quote him as an instance of the thriftiness of the sort—"one which will get fat upon nettles." The "Silver" tribe, consisting of the old cow, whose origin was not very clearly known, six daughters and a calf, made £376 17s., and one of them, the prize cow "Carlisle," by "Albert Edward" (859), passed into Mr. Duckham's hands, as a doubtful breeder, and became the dam of the double first "Commodore" (2472), by "Castor" (1900). Herefords have been bred at Woburn Abbey as far back as 1790. Three first Smithfield Club prizes fell to their lot, and it was with three of the breed that John Duke of Bedford, in 1825, beat three of the Hon. Charles Arbuthnot's Shorthorns in a sweepstakes. The Keightley, with its rather light flesh, white sides, and deeper milking powers, was a very choice tribe, but it is the best of the Bright-eyes which is preserved with Mr. Hewer's bull "Favorite," in a pleasant pastoral picture, with a sheep and shepherd background, in the Abbey Collection. The breed has been well tested as milkers, but although we pressed him hard on the point, Ricketts, the old herdsman, could not speak to more than 16 quarts per day from any cow in the height of the grass, and even after a third calving. The chief difficulty with them at Woburn has been to make them milk, and latterly they have merely suckled their calves, while Suffolk-polls and Alderneys have been their dairy substitutes. As regards milk, "the Herefords generally dry themselves fast enough." Still, if in point of quantity they fall below many other pure breeds, the quality of their milk, like the Galloway's, is undeniable. The Prince Consort's Flemish Farm (where the Herefords were first especially located in 1855) has held its own well, under Lieut.-General Lord Bridport's management, both with fat and store beasts at the Royal Agricultural and the two great Christmas Shows. The Royal Farm winnings with the breed in these three arenas, up to the end of 1867, amounted to £400 for 29 prizes, a large proportion of which were firsts, exclusive of gold and silver medals. Among the latter, is the Birmingham Gold Medal of 1851, for the best bullock in the yard, which was bred by Mr. Stedman of Bedstone. "Brecon" (918), was the first Hereford bull that the Prince Consort ever purchased; and his son "Maximus" (1650)—who goes back through his dam "Superb" to Mr. Price of Ryall's breed, and through his sire to that distinguished winner, "High Sheriff" (356),—was the first to bring the Royal Agricultural Society's

orange card to Windsor. The rule as to not exhibiting any store stock not bred at the Flemish Farm, was broken for "Adela," a purchase at Lord Berwick's sale, when she came in "the holiday time of her beauty," as a yearling heifer to "Battersea." She and "Maximus" (1650) took a first there, when all Herefordshire with its fifty entries could boast of no more than two; and Shropshire, Dorsetshire, Gloucestershire, and Warwickshire divided the other four. Never did the supporters of the breed close their ranks so well; as the cow, two-year-old bull, yearling heifer, and heifer-calf classes were universally commended. Eight prize takers out of the twenty-four were bred in or directly descended from the Cronkhill herd, and "Ada," "Adela," and "Adelina," were all of its Silver tribe. "Milton" (2114), the Gold Medal bull, was one of the eight, through his grandsire "Attingham" (911), and "Matchless," which took the same honour among the females, was a model of symmetry and making up. The breeders of Herefords have always been keen showmen. They began their Royal Agricultural career with only 24 entries at Oxford, but the numbers swelled to 97 at Battersea, and to 113 when the Society was last within hail of them at Worcester. No men have invested the cattle portion of their shows with more life and novelty; and the bull, cow, and offspring; the bull, with three of his calves; and the cow groups, one for every fifty acres of occupation, contrast pleasantly with the somewhat monotonous routine elsewhere. The late Mr. Clark Hillyard, one of the oldest and most eminent graziers in the Midlands, considered that in 1842 the Hereford men were "breeding their beasts rather too fine, too narrow in the chine, and too thin through the heart." Emulation has been considerably quickened since then, not only by shows and the Herd-book, but by the steady demand for steers from other shires, which have "Joseph-like, a better coat than their own." Deep, close-grained flesh and firm handling have been consistently aimed at, and achieved in herds, as well as neat and nicely covered points. We need not go back to "Cotmore" (376) for heavy-fleshed bulls, if we wished to draw a sample. We may point to "Sir Benjamin" (1387), who weighed 24 cwt. and girthed 9ft. 6in., before he was three years old; to his son "Plato" (2160), whose back was like a table; to "Will-o'-the-Wisp" (1454), whose twist seemed to fall below his hocks; to "Silvius" (1746), whose bosom almost touched the ground; and then to the gallant fine-handling "Severn" (1382). As to thickness, Severn's great rival "Claret" (1171) was almost unequalled; and after his high pressure for shows, he was thought to be so useless, that when he went as a forlorn hope to Shrawardine Castle, "those bet against him who had never bet before," and saw him at the end of two seasons the sire of nearly four score calves. "Sir Thomas" (2228) has also earned a name, not only as a prize-heifer getter, but as having brought back nearly 400 per cent. on his 100-guinea purchase of two years before, when he again came to the hammer at 6 years and 10 months. The females can also speak for themselves, through Mr. Perry's Worcester "Beauty" and the very different types of the massive "Bella" and the elegant "Spangle the Second." The lower price of good Herefords as compared with Shorthorns, brings the best blood more within the tenant-farmers' reach. They rely on their own, and not on the parish bull: and it cannot be said of them, as it has been with too much truth of others, that "a half-crown bull flourishes where a crown bull starves." Still, carefully as the blood may be attended to at head-quarters, there is some truth in the remark that Herefords are not a very favourite sort with the London butchers. The fault is not with the beasts, but with this competitive age, which forces a man to "grind up his saplings." It would be strange if they or any other breed could bear a comparison with their forerunners of the more orthodox five-year-old beefers; and salesmen can say with justice that such noble bullocks as Westcar and Rowlands used to pitch in Smithfield Market are not seen at Islington now. White-faced cattle, like black-faced sheep, are a breed which of all others require time to ripen; and that is just what their own thriftiness and modern usage combine to deny them. Hence they flourished best under the old school of graziers, who knew too well the roast-beef stomach they had to deal with to offer it young steers, and sometimes, when capital was plentiful, kept them even to six or seven years old. At present they are more profitable to the breeder and the grazier than they are to the butcher. In the grass season, owing to their remarkable aptitude to grow fast quickly, they are sent off to market earlier than the others. May

of them are disposed of to get very "creamy" in butcher's language, or to put on too much of their fat outside, and thus they do not "prove" as they ought. It is only with age that their meat attains its beautiful appearance, or intermixture of fat and lean. The best come up from the Midland counties between July and December; a fair number are sent from Herefordshire, and none from Norfolk. An experienced feeder of both sorts writes as his opinion that "they will not graze to the size of the best Shorthorns, but are quite their equals as feeders. They have generally," he adds, "a good chance, as the graziers can pick a more sorry lot out of them for his pet field, and therefore they often get the best of the grass." This testimony, as far as we can ascertain, is quite confirmed both by general observation and experience since Mr. Carwen's day. A rough, curly coat is always preferred to a smooth one; it was possessed in perfection by Mr. Shirley's Gold Medal Smithfield Club ox of 1859, and has been a still greater point of ambition with breeders since. The dark-claret colour is more orthodox than the light or yellow red. "Claret" (1177) himself was a fine specimen of it, and his coat seemed almost black as he stood in the shade of his house. Sparkiness is not liked, but still it does not constitute a valid objection or Mr. Naylor's "Variety" would not have followed up her Bingley Hall first at Baker Street. Their fine, placid tempers are a very great point, as they not only feed better, but will bear packing closer in the strawyard, where the West Highlander's horn is never in rest. This remark does not apply merely to bullocks, as we have seen at Crockhill three two-year-old bulls enjoying a happy fellowship in one box. In the yoke they combine the activity of the Devon and the strength of the Durham. They are very little used in their own county; but the Wiltshire men sometimes buy them at Hereford Fair, and, after ploughing with them for a year or two in teams of four or six on the downs, pass them on to the Bucks graziers. We have met with eight of them in the drag-harrows on a Sussex farm, whose tenant found them quite equal in powers of draught to the county reds, and answering with as much docility to the "Duke!" and "Diamond!" "Love!" and "Lovely!"—exhortations and mysterious pricks of the goad, with which the driver-boys guide their steps. Those who have tried all three sorts assure us that they have not the pace of the Devon, but that they go quite as fast as the Shorthorn. The late Mr. Forbes, of Echt, in the north of Scotland, used them in teams of six to trench-ploughs, which turned up whin, heather, and stones to the depth of nearly 14 inches. Despite the immense strain upon them, they never broke step; whereas horses, if such a task had been set them, would most probably have snapped every trace. They are remarkably easy to break to the collar: but if there is a recusant among them, he is pretty certain to be a mottle-face. The great majority of the calves are dropped in April, May, June, and July; but the breeders, where they are not tied down by the Royal Agricultural Show date of July 1st, prefer their cows calving before the hot weather sets in. Yearling heifers are very seldom put to the bull. Nearly all the calves are suckled for six months, and run with

their dams, unless they come at the commencement of winter, and they are very rarely weaned on oilcake. The young steers are fed upon grass, and get turnips and cut straw, and sometimes a little cake in the winter. No pastures send them along quicker than those by the Wye side. Ludlow, Leominster, and Hereford are the markets at which they principally come out in their third autumn; but many of the more forward lots have been sent off before the Hereford October Fair, and a great many never enter the fair at all, but are lifted at once from the pastures. Hence, the general mass of buyers do not see the best of them, and remark, not without reason, on the falling-off both in number and stamp from what they can remember. Leading buyers will not wait as they did when there were no railway facilities for travelling about to see and for removing the lots, and the *prestige* of a fair, be it horse or cattle, is heavily discounted by so many previous bargains in private.

Hereford Great Fair takes place on the third Tuesday and Wednesday of October, simultaneously with the Herefordshire Cattle Show. "The red line tipped with white" begins nearly at the station, and extends right through the heart of the town as far as the "Cornwall Lewis" statue, and also branches off past the Cathedral. Eight thousand bullocks have been brigaded there; but since the new cattle market was opened seven or eight years ago, the muster-roll has barely reached five. Carwardine the elder was once wont to fill Eign Street with his lot, and his son still comes with a goodly number, and supports the family name, as he marches up and down their ranks in his long coat, and with his trusty ash plant. The younger steers are generally offered at Leominster Fair on or about October 17th, and there in old times the Midland graziers would meet Carwardine, Pardington (who still pitches some large lots at Hereford), Knight, and Jones, to learn from them privately what lots they had, and "to take a feeler for the big day." Hereford seems fairly invested by "white faces" for the time being; windows are barricaded against them, and trap-doors burst in by them; but still the inhabitants acquiesce gracefully, and feel thankful that such an invasion comes but once a year. Many of the first Midland and West-Midland graziers hail from this great Bullock 'Change each October, and chaffer with double zeal for a lot, if it is headed by something that looks likely to "train on for Christmas year." "A real topper" has reached 50 guineas, if sold singly; and the late Mr. Monkhouse, who delighted to go through the market on "Sam's" arm, and to put his hand on all the prime beasts, more than once headed the quotations with a lot of his "Chieftain" (930) on "Madoc" (899) blood. The unsold lots are at their places again by dawn on the second day, and sometimes a show-beast bears them company, with his prize ribbons or his show-card for a token on his head. A large number are sent off by rail; but the high road to the Midland pastures by Worcester and Stratford-upon-Avon is still vocal for many days after with the drover's cry.—*Journal of the R. A. S.*

## NATURAL LAWS OF AGRICULTURE.

At the meeting of the Ballymahon Farmers' Club, the following paper was read by Mr. J. BOSWELL: When we gaze far into the landscape or stroll over the verdant fields, how very few there are of us that reflect on the perfect and machine-like action that is working around, above, and beneath us—in cloud, air, and earth. Yes, it is almost incredible and beyond our limited comprehension, the vastness, the beautiful and exquisite harmony that reigns throughout nature's school of chemistry, in supplying to animate and inanimate life the food for their existence, bringing each and all to light and perfection, that man may comprehend and return thanks to his beneficent Creator. If we go back but a few years, and indeed, I regret to say at the present day, we find men sowing and reaping without troubling themselves to ascertain the whys or the wherefores, the pros or the cons; and as darkness was given to us at the same time as her fairer sister light, so the former in agricultural chemistry is too often and in too many instances a

successful rival in keeping pace with the light and knowledge, that should be the presiding deity, especially in the walk that man was preordained to tread—"agriculture." Destined as we are to have our houses washed away if not founded on this rock, a true and comprehensive knowledge of its chemistry is, therefore, absolutely indispensable to attain the satisfactory results, in enabling us to reap the full measure of the fruits of the earth, and stand unrivalled in their production. But, as I have remarked of the apparent apathy of our forefathers as to how these fruits were produced, so that their measure was full and that they exacted the pound of flesh, this system has entailed on us a double necessity to use a careful scrutiny of the laws of agriculture, especially chemistry, to reanimate the goose that had laid for our ancestors those wondrous golden eggs, now in many instances barren, through their imprudence and want of knowledge. But we must confess in their days the land was such as then appeared inexhaustible in food for plants;

no shortcomings, no disease, no blight, no want of manure, the land frequently yielded over twenty cereal crops in succession; and so the tiller, living contentedly, ate, drank, and was merry. But a day of reckoning came; the land was impoverished; disease, blight, and all the concomitant results of worn-out and exhausted land made themselves manifest. It then became evident that something should be done to return to the land what would enable it to reproduce those crops that were by injudicious treatment placed almost beyond the possibility of its growing. At an exceedingly early age, and, perhaps, the first system put into practice for restoring fertility to the earth was by exposing the different ingredients of the clays to be acted upon by the solvents of the atmosphere. This was effected by repeated turnings of the clay, since known more generally by the term fallowing. Now, we have only to refer to the analyses that are every other day put forward of the composition of rain-water, working, if I may so call it, in conjunction with the strong impregnations of saline and other matters that our insular position, girt by the great Atlantic, showers down upon us; so that, in fact, with judicious treatment and a knowledge of how far we should go and no further, our climate affords us an abundant auxiliary in the growth of our crops. Next in agricultural chemistry, and what is almost universal, but, unfortunately, most commonly neglected, is lime. So essential is lime in a first or secondary state in one form or another, that without it there can be no perfection of sample. It is one of the most potent sweeteners and solvents. To learn its effects on the different clays would more than repay any one disposed to study the matter in all its bearings. To give a full detail in a paper like this would lengthen it beyond what some would desire. However, there are a few remarks I shall feel justified in making. The state of the land should be first fully ascertained and be carefully analysed before applying lime. Your land may not require any more than is present, or it may require a small dressing of 20 to 40 barrels as a purifier in old tillage, foul from effete vegetable matter, or it may require 80 barrels. To a casual observer a difference might not appear in any one of those treatments, so that he limed his land and went on his way rejoicing; but actual results might be murderously different to his most sanguine expectations. The land over-limed becomes in a measure barren, forming an excess of acids set free by the presence of an over-dressing of lime, especially in a limestone soil. And then, again, in the same description of soil with an abundance of limestone there may not be a sufficiency of lime in a caustic state to act as a solvent on the part of food of the plant; for limestone in a carbonate state is not much of a solvent, but in some instances dissipates or condenses fluids from the effects of the weather. This is what causes the drought to be so seriously felt by crops grown on a limestone soil during a hot season, and making a dressing of salt of such value, retarding the evaporation of moisture until gradually absorbed by the plant. Then, again, in applying caustic lime, this should be done in dry weather, and in a dry, slaked state—not like paste or putty—evenly shook on the surface, then harrowed in, and thoroughly incorporated with the vegetable soil. If otherwise applied, the lime becomes almost powerless and weak. The atmosphere has a very beneficial effect in some instances, chemically aiding its transformation when it comes in contact with the various subterranean latent in clays, for the purpose of assimilating into vegetable food, for which it was administered. On other soils, such as our peaty tracts, which are very generally strongly impregnated with sulphate of iron, caustic lime changes into sulphate of lime—a most valuable ingredient in the production of all leguminous plants, opening and rendering friable the tough, adhesive clays, adding strength and solidity to the lighter or sandy soils. Having said so much on lime in a great measure acting as a vehicle in preparing the food for the vegetable kingdom, we come to consider it in its several states presented to us through the different chemical or other preparation known as portable or artificial manures. The importance of these portable manures to the agriculturist is not in our days a mere matter of experimental research—it is a fixed and established unerring fact, when applied with knowledge and judgment. I merely make these remarks as I know there are even still those who only rely on the farm-yard heap to carry them through their several courses of croppings. Now, I by no means underrate the value of putrescent manure, as in it, when properly composed and thoroughly decomposed, you have all that is essential in the construction of plants—the portable manures aiding us

to extend our system of feeding, consequently supplying us with the very best of putrescent manure at a profit in place of an expenditure, when compared with the old system of fallowing. In reverting to the ammoniacal and chemical manures, we find that in guano we have all the ingredients necessary to produce immediate effect, principally from the quantity of ammonia it contains—the most valuable, and, perhaps, volatile of our gases—potash, lime, &c., &c. Phospho guano, if genuine, is an excellent manure, immediate, and more lasting in its effects, presenting phosphates of lime in a soluble and insoluble state; and vitriolised bones actually become superphosphate of lime. Then we have sulphate of lime, known by the name of gypsum, very much used in England, the States, and other countries. Now, all these principal manures, as I have endeavoured to show, present us with lime in one form or another; but so as in using caustic lime, so it is in using each of the several ammoniacal and chemical manures. We must be guided by a careful judgment of what the ground requires, and apply that fertiliser that will yield, or cause the land to yield, the most nutriment to the crop about to be sown; at the same time, carefully bearing in mind the succeeding crops. Caustic lime should not be applied to land that has recently been dressed by any of the ammoniacal manures or that has received a heavy dressing of farm-yard manure; it expels the essential gases; and in reverse, guano or a putrescent manure should not be in junction with caustic lime. Potash is another essential ingredient in the production of vegetable growth; and when we consider the vast quantities of potash taken from the soil in the constant drain of succeeding crops, it should the more cause us to extend our knowledge and anxiety, lest at a future day it would cease to grow any crop for us; for I am fully convinced that potash is essential to a perfect development of most crops. Now, in farm-yard manure we have potash frequently in very great quantities, and when in this state returned to the land, we have no cause of alarm; indeed, there is no better way of procuring the essential fertilisers than a mixed course of husbandry, that enables us to give back to the land the fertilisers that the plant had previously drawn from it; thus, we cannot alone preserve the land's fertility, but when we consider the great amount of food that has been derived from the atmosphere in conjunction with the earth, to build up the vegetable in its construction, the balance is often in the food properties returned. This is more particularly the case in green manuring or ploughing in green crops, such as rape, clover, vetches, buckwheat, &c., that derive a very considerable portion of their food from the atmosphere. Now, in treating on the food supplied through the chemical ingredients contained in the various manures, and yielded up to the plant, aided by the skill of the agriculturist, there is one insurmountable barrier—want of drainage; it is this want of drainage and a free access of carbon that is instrumental in producing fevers, rheumatism, agues, &c., to our peasants, not and disease to our flocks. Land in such a state, saturated and covered with stagnant water, becomes the reverse of what it was intended it should be, perpetuating the growth of fungi, and acting the part of wet nurse for the production of countless myriads of the insect tribe, always ready to prey on and devour all vegetable growth in their reach, rendering vegetation impossible, the land stagnant and in every way unprofitable to the farmer. No matter what expenditure he may incur in the purchase of manures, it comes to no account; for both the organic and inorganic elements of the land are held in a perfect state of lethargy. When drained, on the other hand, the earth acts in a two-fold manner of bringing supply to the plant—first, by receiving the rain-water and mists in summer, snow and congealed fogs in winter, from which it gathers oxygen, ammonia, carbonic acid, filtering the water as it percolates through. Then, in a reverse state, in bad weather the vapours ascend through the soil after depositing their quota in a like manner, and thus beautifully tempering the land to the season; for what can be more unreasonable to expect than a submerged wheat plant to thrive in winter, and on a hard impervious pan of earth to grow in summer? Certainly, nothing can be more impracticable or obtuse, except the head of the man that would expect it.

COMPULSORY *versus* VOLUNTARY EDUCATION.

At the first meeting of this winter's session of the Winfrith Farmer's Club, Mr. T. CHAPMAN SAUNDERS, of Watercombe, reminded the meeting that they were met to discuss, not one of the ordinary practical subjects which they had been in the habit of listening to, connected with agricultural operations; but at the same time it was a question which more or less concerned the agricultural body generally, from its having received some attention at the hands of the late Parliament, with a view to some legislation on the subject of education. Although the question had not been carried far towards its solution, yet there could be no doubt it would form a subject for the earnest consideration of the reformed House of Commons (Hear, hear.) He was glad to find, therefore, that the club had thought it advisable to entertain the question at once, and he trusted there would be a full and free expression of opinion upon it. It was his intention to confine his observations more particularly to the education of the agricultural poor; and he would briefly mention that during the past week he had read a communication to the *Dorset County Chronicle* from Mr. Stanhope, an assistant commissioner, to the effect that a commission of inquiry was shortly about to be instituted into the employment of children, young persons and women, in the county of Dorset, "for the purpose of ascertaining to what extent, and with what modifications, the principles of the Factory Acts can be adopted for the regulation of such employment, and especially with a view to the better education of children." Having spoken of the apathy which had ever been manifested in regard to education, both by employers of labour and the lower classes themselves, he said employers on the one hand might have been led to observe that some of the more highly educated members of their own body had occasionally proved less successful in business than others whose opportunities had not been of such high order, and the inference drawn was that this failure might be attributed equally to a want of good early training and natural ability as to a deficient education at school. After all, the instruction received in schools was but a part of one's education, for the circumstances of the home and the disposition of the parents had much to do, either for good or evil, with the formation and building up of the character of the child (applause). The labourers also frequently showed an indisposition to send their children to school, even when the opportunity was presented to them on the most advantageous terms. Moreover, when an attempt was sometimes made to point out to parents the advantages of sending them, the argument was turned in a wrong direction to that which was intended, and a false idea was entertained that some personal end is to be gained, and one never contemplated. Would a compulsory system remedy the evils that exist, without doing a positive harm in some instances? He believed not (Hear, hear). Education, to be compulsory, must in the first place be subject to the law of the land, and heavy penalties must be enforced so as to prevent children from being employed in agricultural work at too early an age. The questions of education and employment were so intimately connected that it was quite impossible to enter fully into the consideration of the one without involving the other. Therefore, in order to carry out what had been proposed, it would become absolutely necessary to restrict parents from sending their children to work—and also employers of labour from engaging them—under a certain age, and to enforce a penalty for infringing the law, with a view to their compulsory attendance at school. This would prove a great hardship, to say the least of it (Hear, hear). It was well known that in many families there were several children, probably five or six, all under the age of ten years, and these would be reduced to the most penurious condition of depending solely upon the father's limited earnings. Probably one or two of the elder boys might be enabled to earn 2s. a week each by working on the farm, and this would be the means of keeping the family in better circumstances. He thought it would not be unreasonable to suppose that in such instances a determined, and he thought a just, resistance would be made against an attempt to compel them to keep such boys at school

(Hear, hear). The education of such children would involve the destitution of the family, and he could not conceal from himself the belief that such a system would create a greater present evil than it would confer future benefit (applause). They would no doubt be told that the application of what was called the Factory Act to children employed in manufactories had thus far worked well. By that Act, he believed, no employer was allowed to hire children under a certain age, unless they had previously given the required number of attendances at school. Such a course might have been desirable or necessary for various reasons. The extent to which division of labour was carried out in such places created in itself a greater demand for children of tender age, girls, for instance, being hired so young as to be of no service whatever in agricultural pursuits. Greater facilities were also afforded for part work and part school; nor must they forget altogether the difference between the atmosphere of a close room, with all kinds of particles of small fibrous matter floating about and taken into the human system imperceptibly through the lungs day after day, to that of breathing a pure atmosphere in the open fields. And as to the instruction of those children, it was far more easy, convenient, and practical in the application than would be the case were it attempted to carry out a similar course among the agricultural poor. It might be a matter of easy arrangement for factory children to work one half the day at the mill, the other half being devoted to instruction, when the school was within 100 yards' distance; whilst in some country places it was frequently and unavoidably a mile and often more from their work (Hear, hear). He said therefore, that the children employed in factories and those in agriculture could not admit of a fair comparison. They must not deny, as he had already said, that greater education among the labouring classes was needed; but all must admit it would be of advantage both to the employers and the employed, provided that the course of study was confined within fair bounds. He agreed that the children of the labourers should be instructed in reading, writing, and arithmetic, but believed that a simple elementary education was much more suitable and advantageous to them than the extreme system which was adopted in some villages, and which tended to raise them above their station, and to incapacitate them from fulfilling the duties of the station which they would hereafter be called to fill. Practically speaking, and being himself an extensive employer of labour, he had reason to appreciate the value of men who were able to give an account of themselves in writing, of work done, the counting of stock and the receipt of wages due, after deducting for cash and goods paid on account. Such men were undoubtedly to be preferred before those who could neither read nor write, though in other respects they might be equally valuable on the farm (Hear, hear). He considered a compulsory system of education was opposed to sound principle, in that it took out of the parents' hands that responsibility which they must naturally feel incumbent upon them, to educate their children. Moreover, he questioned whether they could succeed in drawing a line between those who were willing to afford their children such advantages, but who were totally unable to pay for them, by the loss of wages which such children would otherwise earn. If education was a matter of public and imperial necessity, the expense of such a system should be borne by all who shared in its benefits, including the owners of every description of property in the kingdom. It was only just that before any additions were made to the already excessive local taxation on real property, on account of this national necessity, to say "Let us see incomes, and every description of property which is convertible into capital, made to contribute their fair share" (applause). Until that took place justice could not be done in ordering an educational rate, whether it was to be collected locally or from the nation. Nor would it be just that those parishes in which—through the interest taken in the poor by the clergy and laity—education had advanced beyond the necessity of further aid, should be called to contribute to the raising of a neighbouring parish, in which such local interest



had not been evinced to the same high standard of excellence (Hear, hear). He urged upon agriculturists to do all they possibly could to induce parents to send their children to properly-conducted schools, but do not let them enforce a system which threatened to prove still heavier upon the so-called "poor-rate," and which, being under the sanction of the State, must necessarily be in harmony with Church and State principles. He thought that could not be made satisfactory to people holding different views (applause). He felt sure that a greater extension of Government grants, with the present voluntary system—which in many places had not yet had a fair trial—would answer far better than resorting to that most un-English course of compulsion (applause).

In the course of the very practical discussion which followed upon the subject, it was acknowledged that the question was one which intimately affected the interests of the agricultural body. Although it was not at present quite clear as to what was the best mode of solving the somewhat difficult problem, yet the manner in which the matter was being discussed in so many quarters fully testified as to what was the popular feeling in respect to it. It was now agreed on all hands that the labouring classes ought to have a certain amount of education given them, and the agricultural body did not wish that this education should be limited in any way. But at the same time it was urged that if too liberal an education were given to them, a greater part of it would be thrown away or turned to bad account. The labouring classes should have sufficient education to enable them to perform their duties in the best possible manner, alike with regard to their employers, themselves, and their families; they ought to be able to make an estimate of their work and wages, and also how to spend their earnings to the greatest advantage; for if a man was incapable of making a calculation beyond the money which was actually in his pocket, he would be likely to go wrong one way or the other. Admitting that enlarged instruction was desirable, how was it to be obtained? for it was quite certain that a compulsory system was impracticable and entirely out of the question. It was unsound in principle and impracticable in practice. Even in those parishes where efficient means of education were provided at a merely nominal cost, they saw an almost positive neglect on the part of parents to send their children—and particularly boys, and no doubt they were those who ought to receive the education, as it would become their especial duty to take care of the £ s. d. It was generally found that directly a boy was enabled to earn 1s. 6d. or 2s. a week upon the farm, he was taken from school. That 2s. was of more importance to the poor parents than the education of the children, and it would require a considerable amount of compulsion to alter the present system. It was stated that in the parish of East Lulworth a good school had been established for many years, at which instruction was given comparatively free of cost; but for years there had not been more than one or two boys who had remained there till they reached the age of 11 years, and they were not the children of agricultural labourers. Some of the girls remained till they were 14 or 15 years of age. It was considered the best means was to show the parents the importance of education and to give them the greatest inducement to take advantage of the voluntary mode according to their own tastes and ideas. It was utterly impossible that a Government scheme could be made available

for the labouring classes; but if our rulers in their benevolent judgment decided to introduce the compulsory system, then came the question how was it to be paid for? The general feeling was that it would come as so many other charges had done, under the head of poor-rates, which seemed to include everything in the shape of expense—all to be borne by the "poor" and or "real" property. There could be no doubt that an outlay necessary to provide a national system of education would be included in the same impost. It therefore behooved the ratepayers to exert themselves at once to express their opinions in respect to the threatened injustice. If the educational system were adopted, the benefit would be felt by the country generally, and consequently every description of property ought to have its share of the expense, and not leave the great bulk of the property to be exempt while in the enjoyment of the advantages secured by it. It was therefore the duty of the agricultural body to do all they could to get the local taxation fairly adjusted, and to get the impost commonly called "Poor-rate" spread over a larger area of property. Then it was just possible that if a compulsory rate were levied it would not fall upon a minority of the tax-paying community. Whilst the real property of the country was so heavily burdened, it would be the height of injustice to saddle it with further expense. The agriculturists and landed proprietors were now suffering from the extremely high rate of taxes, and if anything was done it was to be hoped that the sturges move would be made to spread it over a larger area, and to bring it more generally upon property as at present assessed to the income-tax, and not to exempt £200,000,000 of property that actually participated in the benefits, while it shared some of the burdens. They must not stand still and wait for laws who were now escaping these burdens to take the initiative in the matter; it was for those who suffered to rebel, and not to be like the ass—to carry all the burdens put upon them without speaking. It was of no use to protest after the impost had been fixed upon them, to bear the burden grumblingly; they wanted a change that they could bear cheerfully. The meeting was congratulated upon the fact that upwards of 70 chambers of agriculture, numbering something like 15,000 members in different parts of the country, had been established, and it was incumbent on farmers' clubs and associations to combine with a view to bring their grievances under the Legislature. If they went the right way to work they must be entitled to some consideration; but money was influence, and they had to fight against the £200,000,000 that were now exempted from the burdens of local taxation. A strong objection was expressed to the cost of maintaining the militia stores out of the poor-rate, and it was urged that all kinds of property enjoyed the benefits of the county constabulary, the highways, and other subjects included in the poor rate, and all classes of property should bear their fair and just share of the expense. At the close of the discussion the following resolution was unanimously passed:—

"That this club views with alarm any scheme for making education compulsory, believing that the present voluntary system, with increased assistance from the State, if given a fair trial, would work well and receive greater impetus from the hands of all classes of society."

The proceedings concluded with the customary vote of thanks to the lecturer and chairman.

## NON-DRIED MALT—CATTLE-FEEDING EXPERIMENTS.

1. The use of non-dried wheat and barley-malt as food for herbivorous animals, extend over a period of 15 years, ending 1885. 2. Until 1860, horses alone had been the subjects of my experiments. 3. 1861, a flock of 200 lambing-ewes and their lambs were fed with non-dried wheat malt. The flock continued healthy during the whole season; the lambs fattened fast, and at the age of 12 weeks were sold at from 40s. to 45s. each. 4. At the end of the next two years, non-dried wheat and barley malt, as food for cattle and sheep, had come into general use in this neighbourhood, increasing and increasing until autumn, 1865,

when the number of sheep within an area of 10 miles of the borough feeding upon the food, had increased to upwards of 12,000 producing upwards of 30,000lbs. of mutton weekly. 5. During the winter, 1864-5 and following spring and summer, the weekly consumption of non-dried wheat and barley malt on the farms of one proprietor amounted to 25 sacks weekly, and upon the farms of another to 16 sacks weekly, as food for sheep, lambs, horses, and oxen. Failure of the roots and grass crops during the four years ending 1865, the increasing rise in the price of all kinds of cakes, and the low price of wheat

A horse at rest and required to be made fat for market, non-dried wheat and barley malt is the only single food consistent with the health of the animal that can be used : no experienced grazier would think of using raw barley for the purpose ; an aggravated skin disease, depilation, or eye disease, would be the attending consequences. Whereas non-dried malt will restore a debilitated horse to health : raw barley will aggravate the disease. Non-dried malt is most wholesome and nutritious food for lambing ewes and their lambs ; but raw barley is deleterious. Non-dried malt will restore a diseased flock to health ; while raw barley will have prejudicial effects. Non-dried malt alone will fatten the leanest sheep in 12 weeks. The only exception to the use of non-dried malt in preference to raw grain is in the case of fattening pigs. The first week of using non-dried malt, the produce of 1 lb. of raw grain daily will be found to have produced 2 lbs. of mutton upon each sheep : this cannot be said of any other single or mixed food. Every experienced grazier knows that sheep or oxen add but little weight to the carcase during the first month up of fattening when fed upon the ordinary food, but from the easy digestibility of non-dried malt an immediate and rapid increase of flesh is the result. The evidence of farmers shows that oxen are frequently not so good at the end as at the beginning of the first month. Sheep are fed in companies or flocks in open fields from mangers common to the whole ; and for the safety of the lives of the sheep it is important that, whilst nutritious, their food should be of a harmless nature : hence the superiority of malted over raw grain ; the former is harmless if eaten to excess ; the latter poisons in the small quantity of a pint taken at one meal.

ROSS AGRICULTURAL SOCIETY.—At the show of this Society, the chief class, as at Hereford, was that of lots of breeding cows entered in proportion to the acreage in the occupation of the exhibitor, each lot of cattle to be of one breed. There were four entries in this class, producing 33 animals, the Rev. W. Holt Beaver showing seven Shorthorns of various ages; Mr. A. Armitage eight Hereford heifers under three years old; Mr. J. Wigmore twelve Herefords, of various ages; and Mr. T. P. Brown six Herefords, of various ages. The Herefords were again successful over the Shorthorns, Mr. Wigmore taking first prize, as he did last year. For the second prize the judges selected the Shorthorns, and the other two lots of Herefords were highly commended. There were only five Hereford bulls entered in two classes, and amongst the Shorthorns Mr. Beaver had it all his own way. There were only a few pigs exhibited, but Mr. Smith, of Bibury, one of the judges, said of the sheep: They were a great ornament to the county, and were shown in such a state as was scarcely seen at any other show in the kingdom. They were brought forward in their natural state, not in small numbers, but in twenties and sixties, and in the whole flock. It had been a neck and neck race in a great many of the classes, and they had to examine them very closely, and more than once, before coming to a decision. He complimented the exhibitors upon showing such a splendid lot of animals, and said he did not know where others would come from to beat them. They were shown in an honest and fair condition, and were not pampered up as is customary with many sheep sent for exhibition. As to the objection that Cotswolds deteriorate and lose their character when they come into Herefordshire, he maintained there were sheep exhibited at that show with as good coats as any in their own country. If they continued to have as good a show of sheep, and better if they could, he would defy any exhibitors to come forward and beat them. Mr. Holt Beaver, speaking from his own connection with the press, declared that unless a person had a real and thorough collegiate education for ten or twelve years, he was no more fit to write articles for the newspapers than a "young bull."

Ten oxen, each consuming non-dried malt the produce of one stone of raw barley, straw chaff, and 1½ bushel of turnips daily, will produce 100 stone of beef in 10 weeks; whereas 151 weeks are required to produce the same quantity of beef upon the same number of oxen, with any weight of other mixed food; or 6 lbs. of linseed-cake, in addition to the stone of raw grain, will produce only the same quantity of beef in the same time as the non-dried malted grain. A horse daily consuming non-dried malt, the produce of one stone of raw grain, with 10 lbs. of hay, will increase 15 stone in weight in 10 weeks; whereas, with raw grain, it becomes diseased, hair falls from the skin, loses eye-sight, is attacked with grease, and becomes an useless animal. A horse debilitated by disease is quickly restored to

## THE REARING OF CALVES.

BY A PRACTICAL FARMER.

At the time of calving great care should be observed in taking the calf from the cow, as in most cases it is desirable, and often necessary, to assist the cow at calving-time. In drawing a calf away from the cow as she stands, it is the common custom to allow it to fall upon the ground, by which it is frequently injured: this is because of its foul and bloody state, that no one likes to support it till it gradually reaches the ground. This is wrong, and might be easily prevented by an attendant holding a sack or other convenient thing to catch part of its weight as it comes away, and let it gently down. Its mouth should be immediately cleansed, and the nostrils freed from the adhering filament or transparent skin, so that it may breathe freely. The next thing is to partially clean it with a wisp of straw, gently rubbing it all over. The cow should then be permitted to lick it for a short time, till it appears able to suck, when it should be lifted up and held to the cow's teats. If a protracted calving-time, it may require suckling by hand, owing to weakness, &c. After the first suckling it will generally take care of itself, and readily find the teats. The navel-string should be attended to, lest bleeding should ensue, which, however, is seldom serious: should it become sore, a pledget of tow wetted with Friar's-balsam should be frequently applied, and, if necessary, kept on a while by a bandage. In some parts of the country it assumes the character of a disease, attended with inflammation and swelling or tumour, and is termed navel-ill. Fomentation, and if requisite lancing the part swelled, with a two-ounce dose or two of castor-oil, followed by a little gentian or laudanum, and nutritious drinks, will constitute the chief remedy. The calf should remain at least three days at full liberty with the cow, to suck as it pleases: the beastlings are highly conducive to its progress from their aperient properties, being powerful in removing from the intestines the black and glutinous feces that accumulate there in the latter months of gestation. Upon taking the calf from the cow, it should be supplied with new milk in moderate quantities three times a day for one, two, or three weeks, according to its strength or healthy state. Skim-milk, boiled or scalded, and mixed with a little bean, pea, or oat meal, and cooled to new-milk heat, may gradually be substituted, and continued till it is sufficiently grown to eat freely grass, hay, or other food, when it may be fed on skim-milk alone, or skim-milk and oilcake porridge mixed, till it is strong and well-grown. Many breeders persist in this course for a whole year as a system, when they are separated as yearlings to fight for themselves. In dairy countries it is customary to sell many of the calves; but those to be reared are mainly reared after the first two or three weeks' subsistence upon new milk, upon warm new whey, or scalded whey and buttermilk mixed, aided by either oatmeal, or wheat and bean flour. A quart of meal or flour is thought sufficient to mix with from forty to fifty quarts of liquid. Oatmeal gruel and buttermilk, with occasional additions of skim-milk, are also used, together with regular supplies of such food as above-named. An old writer upon rearing calves in dairy countries says—"The best method is this: the calves suck a week or a fortnight, according to their strength (a good rule); new milk in the pail, a few meals; next, new milk and skim-milk mixed, a few meals more; then, skim-milk alone, or porridge made

with milk, water, ground oats, &c., and sometimes oilcake, until cheesemaking commences; after which, whey porridge or sweet whey in the field, being careful to house them at night until warm weather be confirmed." A little objection arises relative to the time the calves are allowed to suck. It is not requisite that they should exceed two or three days, as by that time the action of the beastlings has cleansed the intestines from superfluous accumulations. A week's new milk is of value in a dairy country. It is more economical to rear calves from the pail, and, upon the whole, the best plan for the calf's prosperity, as having free access to the teat its supply is irregular, often taking too much; whereas from the pail it may be regulated according to requirements and judgments. Our best breeders are very particular upon this point. Their calves are reared upon a lengthened-out supply of new milk, often extending beyond a year; but it is supplied from the pail according as good judgment and caution dictate, and is aided by such other food as is most desirable—i. e., cake, meal, roots, hay, and corn. In this way calves make the most rapid and satisfactory progress. It is the way in which many of our prize animals are brought up. The quantity of milk allowed to each calf in ordinary rearing is in accordance with its strength and growth; and will be about from 1½ to 2½ gallons daily for the first ten or twelve weeks. The first three or four weeks to consist entirely of new milk, to be gradually reduced to skim-milk, aided by linseed-porridge, cake-meal, and a few sliced turnips, grass, and hay. The time to give these meals of milk should be about 8 a.m. and 4 p.m. As it grows and thrives, more milk and more food may be given. The milk in all cases, except direct from the cow, should be boiled, and cooled to the temperature of milk when first drawn from the cow: cold milk will speedily cause the calf to "skit or scour," and occasionally bring on colic; an excessive quantity often immediate death. To boil milk improves its nutritive qualities, and prevents scouring. In about three months, if well reared thus far, the calf should be able to sustain itself upon grass or other food, with but little aid from the pail or artificial food. A little bran however, or a little hay or grass, and about a pint of crushed oats daily, will be admirable additions to its food, and should be given with discretion. The hay should be of the sweetest and best, and be given sparingly as required. In the summer, rank or strong-grown grass must be avoided: green clover may be used, but it should be slightly withered before being given to the calf. As the calf continues to grow and thrive, these precautions may gradually be dispensed with: the great care being to provide the best natural food suited to young animals, i. e., a second-rate pasture field in the summer, sliced turnips, carrots, or (if given very sparingly) mangolds, sweet hay, and crushed oats and cake in the winter. Much injury is frequently done to calves in the late autumn in permitting their continuance upon pasture during cold and frosty nights. Slight rime, autumnal frosts, are very detrimental, often fatal. Calves ought always to be taken to shelters or warm yards, and dry food and dry lairage before cold or frosty weather sets in, or colds, inflammatory attacks, and excessive scouring will occur. After all, the principal thing in rearing calves is great watchfulness and care on behalf

of the breeder to supply their wants as his best judgment dictates upon daily inspection. No rule, however good, will apply to all cases. "It is the eye of the master that grazes the ox," says the old adage. It is equally applicable to rearing the calf.

The foregoing remarks, or directions, chiefly refer to rearing calves by the pail, but the most popular course now is to rear them with the dam, or to make one dam rear two calves, *i. e.*, "as running sucklers." The prevailing modern practice is to provide a calf in readiness, in anticipation of the cows calving. As soon as that takes place, the bastard calf and the dropped calf are both put to the cow, and it is remarkable how kindly she will generally take to both calves, and permit both to suck at once. If she is a good milker and is well kept, she will profitably suckle and rear both without much injury to herself. Many breeders would urge that this course would ruin both the cow and her two calves, but such is not the fact if they are well managed. The cow, in addition to her pasture food in summer, and her turnips, hay, &c., in the winter, must have other artificial aid, *i. e.*, cake,

corn, meal, &c., or she cannot sustain the drain made upon her system. The calves too should have bran and oats, or other nutritive food. In this way a good "milcher" will occasionally rear three calves. If ample provision has been made to sustain the continuous progress of the two calves, they may be taken from the cow at the age of four months. Of course they must be well kept, or they will soon shrink, which is the precursor of certain loss either of the calf or its healthy condition. The period for castration is important: it should take place before the calf is weaned either from the cow or pail. About from six weeks to four months old would appear, from experience, to be the best time. Heifers to be spayed should not exceed ten or twelve weeks in age. The chief thing to be observed after these operations is to keep the calves in perfect quietude for a day or two, and to watch against inflammation of the parts, and act promptly if aught goes wrong. [It is questionable whether prize stock do not often live yet more luxuriously than our correspondent describes.—EDITOR F.M.]

## THE HIGHLAND AND AGRICULTURAL SOCIETY.

### TRIAL OF IMPLEMENTS.

The public trial of implements set aside by the Judges, other than reaping machines, at the recent show of the Highland and Agricultural Society, took place at Broomhill, Ruthrieston, on the farm of Mr. Munro. There was a considerable attendance of farmers and others, some from a distance. The implements set apart for a trial by the Judges were as follows:—

*Ploughs*.—William Craig, Oldmeldrum; Thos. Pirie & Co., Kinmundy, Longside (2); Wm. Shivas, Kinmundy, Summerhill.

*Grubbers*.—William Craig, Oldmeldrum; William Smith, Skelmuir, Mintlaw; John Thomson, King Street Road, Aberdeen.

*Land Roller*.—Benjamin Reid & Co., Aberdeen.

*Rotatory Digger*.—Thomas Duff, Perth.

*Turnip Sower*.—Wm. Rae, Bourtie, Oldmeldrum.

The Judges present were—Messrs. Alex. Campbell, Blairton; Porter, Monymusk; Abernethy & Co., Aberdeen; and R. Walker, Portlethen.

The chief interest was taken in the ploughs. Of these there were four—two for single and two for double furrows. Mr. Pirie, Kinmundy, exhibited his patent implement, which has been commended wherever it has been seen at work. Both the single and the double furrow ploughs fully substantiated the claims of the patentees in their favour as regards economy in draught, economy in manual labour, economy in wear and excellence of work. Another plough on the ground which attracted a good deal of attention, and which displayed in its construction much in common with Mr. Pirie's patented implement, was a double-furrow plough made by Mr. Shivas, Summerhill, New Machar. It performed its work well, and, by means of a contrivance peculiar to itself, made a fearin to begin the field, one coulter only being brought to operate on the ground. If we remember rightly, this implement, when exhibited at Aberdeen, had no bevel wheels; but it was now wrought with wheels of that description similar to those patented by Mr. Pirie. This plough differs from Mr. Pirie's in having stilt. Mr. Craig's double-mould plough was much praised.

Perhaps none of the implements was deserving more of the attention of northern farmers than the Rotatory Digger shown by Mr. T. Duff, Perth. The implement is a very ingeniously-constructed one, and simple withal. The tines are set three by three, like a series of steel graips round a drum, and every trio of tines is made to act, by means of a curious chain, in the peculiar manner which enables them to operate so efficiently in pulverising the soil. The teeth are not dragged backwards in the

ground, but are gradually pressed down, the machine meanwhile moving forward, and pulling them rapidly out in a jerking fashion; and the number of tines with which the machine is supplied prevents any portion of the ground from remaining undisturbed, thereby providing full, thorough pulverisation of the whole. The great advantage that the Rotatory Digger has over the plough is that it does not leave a hard body under the turned-up soil impervious to the valuable atmospheric influences, but leaves a number of small holes through which the atmospheric influence can permeate freely. The machine was tried on the old cart road of the field, with two pairs of horses, and although some gentlemen thought an extra pair of horses would be necessary for regular work of a similar kind, all agreed that the work was capitally done. But for economical purposes, and considering the quality of the work, even six horses would not be too many. The machine cultivates 44 inches wide, and from 9 to 10 inches deep. Its peculiar adaptability is to breaking up the stubble immediately after harvest, particularly on clay land, and leaving it, as we have said, open to the influences of snow, frost, rains, and vapours during the winter.

The trial of Reid & Co.'s Excelsior Land Roller and Clod Crusher was very satisfactory, although the absence of clods prevented its capabilities from being fully tested. It is formed of a series of discs, each revolving separately, and every alternate one placed loose on the axle, so that when it is at work it is self-cleaning. It makes an impression on the ground like the footmarks of sheep, and this peculiarity renders it very useful in fixing the roots of grass and of corn crops in spring.

All the three grubbers worked well, and as none of them presented any striking speciality, it would be somewhat invidious to anticipate the report of the judges in placing one before another.

There were two ploughs, which were not considered legitimately in the field for trial—one by Mr. Buchan, Hazelhead, and the other by Mr. F. Wilson, Strachan, Banchory. They had been set aside by some means or other at the show, but the judges had no instructions to report upon them. Mr. Buchan's plough has three wheels—a bearing wheel in front, and a sole or side wheel behind the mould-board. It is intended for one horse on stubble or light lea land. It was shown at work with two horses on rather stiff lea, on which it operated easily and efficiently. Mr. Wilson's plough has no peculiarity beyond an improvement in the mode of fastening and adjusting the coulter. It seemed of light draught, and made excellent work.—*Banff Journal*.

## THE CULTIVATION OF LAND IN AMERICA.

A frequent reference has been made by public writers in the United States, as well as in England, to the exhaustive system pursued by the agriculturists in the former country, by growing wheat year after year on the same land, without applying manure to compensate the soil for the loss it thus sustains. The natural effect has been the impoverishment of the land to that degree that it yields not more than half what it formerly did where still cultivated, while large tracts have been abandoned to their former state of wildness, and others have ceased to be sown with wheat. This is the case not only in the New England and other States on the eastern seaboard, but also in the western and north-western new States, of comparatively recent occupation. In these the same exhaustive system has been pursued with the same deteriorating effects upon the soil, diminished production, and giving a prospect of speedy and utter impoverishment.

In the adoption of this system, which has been carried on, as a general rule, from the first occupation of the land, there was only one consideration that engaged the attention and the efforts of the cultivator, namely, to produce, at the least possible expense, a crop that was capable of being converted into money; and as wheat would always be in demand for exportation, and maize for home-consumption, whether as cattle-food or for bread, it was to the cultivation of these two articles of produce that the immigrants to the New States turned their attention upon taking possession of fresh tracts of land. Maize was planted the first two or three years, in order to reduce the raging fertility of the soil, and impart to it that solidity required for the successful cultivation of wheat. As soon as these objects are attained, wheat is sown year after year as long as the land is capable of yielding enough to pay a profit; and when this condition no longer exists, it is abandoned or sold, and a fresh tract is entered upon, to be treated in the same reckless manner, which, although answering the purpose of the farmer for a time, is destructive to the country. We can illustrate the effect of this system best by a reference to the statistics of the produce of wheat since 1840.

In the ten years from 1840 to 1850, the entire crop of wheat increased from 10,602,633 qrs. in the first, to 12,560,743 qrs. in the latter year, being an increase of 1,958,110 qrs. only. But in the next ten years—1850 to 1860—the crop rose from 12,560,743 to 21,638,115 qrs., being an increase of 9,077,372 qrs. Now as it is an admitted fact that the acreage yield of both wheat and maize has regularly declined in both the older and newer States, the aggregate increase in the latter decade can only be ascribed to the large extent of new prairie-land brought into cultivation during that period. In the same ten years, the exportation of wheat rose to  $7\frac{1}{2}$  million quarters, although the population had also increased to the extent of seven millions. From 1861, however, various causes have combined to reduce both the crop of wheat and, as a consequence, the exporting power of the States. The most prominent of these causes is the civil war that has raged for three years, by which, not only was the cultivation of land to a large extent in the seat of war arrested, but thousands of farmers in the north and west abandoned their farms, to join their countrymen in what they considered a patriotic contest. But the fact still remains, that, with the return of peace and the resumption of industrial pursuits by the soldiers, the produce of wheat in the United States has not so

much increased as to admit of an export equal to that of 1861, and it has even been reduced to 454,167 quarters, although in the interval large tracts of fresh prairie-land have been brought under cultivation. This last fact ought to have greatly increased the aggregate crop of wheat, if the same system was pursued as heretofore. There must therefore be some deeper and more general and permanent cause for this decrease in the quantity of wheat produced in the States, and their inability to export as much as they did ten years since. We shall endeavor to point out what we have gathered of this cause, from accounts we have received from reliable authorities, the confirmation of which involves the beginning of a new system of agriculture in that country.

It appears that the exhaustive practice of cultivation so long adhered to in the United States has necessarily driven the new settlers further and further westward, thereby increasing the expense of transit to the eastern shipping ports, from whence the surplus must be conveyed to the European markets, which are the only ones of any extent where a constant demand exists. The high rate of taxation in the States, consequent on the debt incurred during the civil war, renders necessary high prices for all kinds of agricultural produce, as well as for other merchandise. It is therefore only when high prices rule at the European markets that the United States farmer can grow, or the merchant ship, wheat to advantage. These conditions begin to operate seriously in that country, and the more intelligent men begin to open their eyes to the fact that, by exhausting the soil and pushing cultivation further westward, they are running away from the real demand, and at the same time increasing the expense of conveying their produce to market. They have consequently begun to alter their system of farming, by adopting an alternate husbandry, including forage crops and the rearing of cattle and sheep; in fact, they are introducing the English system of husbandry so far as the nature of the country and other circumstances will allow. The position of the farmers of the Far West are now such that they cannot grow wheat for exportation on the new lands, although the price they obtain for it at the Lake ports is relatively high. Some of the new farms are hundreds of miles to the west beyond Chicago or Milwaukee, and the expense of conveying wheat or maize to either of these ports swallows up the entire produce or value of the wheat when it arrives. On the other hand, the exhausted condition of the soil left behind them, by which the yield of wheat is reduced to a minimum, is equally adverse to the cultivation of that grain for exportation. One of the essential and indispensable conditions of commerce no longer exists—namely, *price*; for no farmer will continue to grow wheat except to the extent to which he has a demand at a price that will pay him a profit for his trouble and outlay. And this is the view taken of it by the prairie farmers of the West. We have hitherto been taught to look to the country as the source from whence the teeming populations of Europe must resort for the supplementary supply of wheat they required. But those who took that view of the matter did not take into their calculation the increased expense of transit from the new States, nor the exhausted condition and decreased production of the soil. The American farmers have been slow to see this out, but are now rectifying the error by no longer making the cultivation of wheat their almost exclusive object.

This imperfect cultivation of the land was a necessity in the infancy of the Republic; and the reply of President Washington to an English agriculturist, that land was so cheap and labour so dear that it was more profitable to farm a large quantity of land badly than a small one well, was rational. This evil—the dearness of labour—still exists, as well as the cheapness of land; but the system referred to has its limits, and those limits have evidently been reached, and the agriculturists must now retrace their steps and fall back upon the deteriorated lands, and restore them to fertility by a more rational cultivation; the effect of which amongst increasing populations cannot fail to be successful in the end.

The irrational character of the exhaustive system is strongly illustrated in the decrease of agriculture in the old States. Take that of New York itself, for instance, in the five years from 1845 to 1850, during which 671,692 acres had been added to the cultivated land. Notwithstanding this, the produce had fallen off to the following extent:

Horses .....	58,141	Flax.....	lbs. 1,956,485
Cows.....	68,066	Wool ...	lbs. 3,798,527
Other Cattle	127,525	Potatoes	bush. 7,255,066
Sheep .....	2,990,622	Peas & Beans	„ 1,132,054
Swine .....	556,002	Wheat ...	„ 270,724
		Buck Wheat	„ 450,724

This State is now dependent upon the West for half its consumption of wheat, whilst some of the New England States do not grow enough for more than two months' consumption. Even the comparatively new lands of Indiana, Illinois, Missouri, &c., have fallen off already to the extent of half their former yield. It is high time that a new system should be adopted; and we may expect in a few years to find the value of land in the United States rising in proportion to its nearness to the markets for its produce.

The inference, however, that it is our main object to draw from this new movement in the husbandry of the United States is, that under present circumstances we have no reason to expect that they will be able to ship wheat to any large extent until either the price in Europe is permanently high, or the new system shall have restored the deteriorated land in the nearer States to fertility again; and the cultivators are able not only to supply their own populations, but to raise a surplus, as formerly, for exportation. A high price they *must* have in the States or for what is exported. The first must be agreed upon at home; the second depends upon circumstances over which no human power has any control.

**AN EDEN IN CALIFORNIA.**—It is the vineyards and orange and lemon orchards that make Los Angeles the garden-spot of California. Just imagine a collection of gardens, six miles square, and producing at all times of the year almost everything that grows under the sun. One of the largest and most beautiful places in the city is the Wolfskill vineyards, containing 2,000 orange-trees, 1,000 lemon-trees, 500 walnut, 100 fig, and 100 lime-trees, and 55,000 grape-vines. Near by is the vineyard of Mr. Childs, containing 500 orange, the same number each of peach, plum, nectarine, apricot, olive, walnut, and chestnut-trees, and 10,000 vines. Right in the heart of the city is Don Mateo Keller's place, containing 100,000 grape-vines, 1,000 lemon, 500 orange, 100 lime, 100 olive, 200 walnut, and 100 fig-trees, and all of the other variety of fruits known in the south and in the semi-tropics. He also raises hops, cotton and tobacco, wheat, barley, corn, all kinds of vegetables, and everything of the berry-tribe. Last fall, Mr. Keller made 100,000 gallons of wine, and nearly as much brandy. A few miles from the city a Mr. Rose has a vineyard of 200,000 grape-vines. Near him is the vineyard of Colonel Kewen, containing 75,000 vines, 800 walnut, 500 orange, and

300 each of lemon and olive-trees. It must be recollected that from a little elevation in the centre of this garden-city may be seen the broad Pacific on the one hand, and upon the other 200 miles of mountains covered with snow. No such picture may be seen upon the Mediterranean Sea, if, indeed, anywhere in the world.

## RESULT OF FEEDING 14 AND 9 BULLOCKS AT WENDEN HALL, ESSEX.

### COST OF THE 14 BULLOCKS.

1st period, 13 weeks, from June 30th to Sept 30th—			
Grass .....	...	£0 3 6	
Linseed Cake daily 8 lbs. ....	...	0 4 6	
Hay and Straw Chaff .....	...	0 2 0	
Attendance for the whole .....	...	0 0 1	
Weekly cost of each Bullock .. £0 10 1			
Weekly cost of the 14 Bullocks .. 7 1 2			
Total cost each period feeding ..			£21 15 2
2nd period, 4 weeks, from October 1st to 28th—			
Linseed Cake, 6 lbs. daily .....	...	0 4 6	
Bean Meal, 8 lbs. daily .....	...	0 4 8	
Hay and Straw Chaff .....	...	0 2 0	
Turnips .....	...	0 1 9	
Weekly cost of each Bullock .. £0 12 11			
Weekly cost of the 14 Bullocks .. 9 0 10			
Total cost each period feeding ..			36 3 4
3rd period, 9 weeks, from Oct. 29th to Dec. 30th—			
Linseed Cake, 7 lbs. daily .....	...	£0 4 1	
Bean Meal, 16 lbs. daily .....	...	0 9 4	
Hay and Straw Chaff .....	...	0 2 0	
Weekly cost of each Bullock .. £0 15 5			
Weekly cost of the 14 Bullocks .. 10 11 10			
Total cost each period feeding ..			97 2 6
Total cost of the three periods .. £225 1 0			
Average cost of feeding each Bullock .. 16 0 0			
Value of each Bullock on 30th June .. 20 0 0			
Total cost of each Bullock to December 30th 36 0 0			

The 14 Bullocks sold for £413 10s., being at the rate of £29 10s. 9d. each, thus showing an absolute loss of £6 10s. 9d. per head to the feeder.

### COST OF THE 9 BULLOCKS.

1st period, 13 weeks, from June 30th to Sept. 30th—			
Grass .....	...	£0 4 6	
Weekly cost of each Bullock .. £0 4 6			
Weekly cost of the 9 Bullocks .. 2 0 6			
Total cost for each period feeding ..			£26 6 6
2nd period, 4 weeks, from October 1st to 28th—			
Grass .....	...	£0 3 6	
Non-dried Malt the produce of half peck Raw Barley daily, 7 lbs. ....	...	0 3 6	
Straw Chaff .....	...	0 0 6	
Weekly cost of each Bullock .. £0 7 6			
Weekly cost of the 9 Bullocks .. 3 17 6			
Total cost for each period feeding ..			13 10 0
3rd period, 9 weeks, from Oct. 29th to Dec. 30th—			
Non-dried Malt the produce of 1 peck of Raw Barley, 14 lbs. daily .....	...	£0 7 0	
Straw Chaff .....	...	0 0 6	
Weekly cost of each Bullock .. £0 7 6			
Weekly cost of the 9 Bullocks .. 3 7 6			
Total cost for each period feeding ..			30 7 6
Total cost of the three periods .. £70 4 0			
Average cost of feeding each Bullock .. 7 16 0			
Value of each Bullock on 30th June .. 15 0 0			
Total cost of each Bullock to December 30th 22 16 6			

The 9 Bullocks cost £23 5s. 6d. per head less to feed than the 14.

The 9 Bullocks sold for £235, being at the rate of £26 2s. 2d. each Bullock, showing a clear profit of £23 6s. 2d. per head to the feeder.

The loss per head upon the 14 Bullocks fed on artificial food was .....		£6 10 9
The gain per head upon the 9 ditto fed on Non-dried Malt .....		3 6 2

Balance per head in favour of the 9 Bullocks .. .. £9 16 11  
ISAAC SEAMAN.

## GREEN CROPS.

At the usual monthly meeting of the Kilkenny Farmer's Club, Mr. READE read a paper illustrated by the exhibition on the table of a number of roots of long red and yellow globe mangels, and Swede turnips, grown at Birchfield. He said: In treating of the growing of green crops, I will commence at the first operation, namely, the ploughing of the land, which is of the greatest importance. It should be done in autumn, before the soil becomes too wet. The ploughing should be deep, for on this depends much of the productiveness of the succeeding crops, as well as of the immediate one; for the turnip, the mangel, and the carrot all send their roots deep into the earth in search of their food when it is properly tilled for them. On moderate sized and small farms, where the subsoil plough is not used, I would recommend an ordinary plough, stripped of its mould-board, to be sent into the furrow after the turning plough, to rip up the subsoil, and open it for the roots of the coming crop. This plan, when adopted, will help to carry down superfluous surface water, and to retain sufficient moisture in the earth during the drought of the summer. In fact, to make a comparison, I would liken deep ploughing and shallow ploughing to two sponges, the one large and the other small. The large one will absorb more water, without overflowing, than the small one; and when exposed to parching winds and a hot sun, will retain its moisture much longer. So in deeply-ploughed soil, in the heat of a dry summer, such as the last one was, green crops will flourish; whilst in the shallowly ploughed ground they will wither off and become mildewed from drought. The advantage of ploughing in autumn will be felt in the spring; for by leaving the land roughed up and exposed to the frost and snow of winter it becomes more friable, or gentle, and is more easily refined to a proper tilth to receive the seeds, and cause them to vegetate evenly and quickly, which is of great importance. Now, we will suppose the winter passed, and the spring come. There is much work to be done in cross-ploughing, grubbing, harrowing, rolling, and weeding; for the more the earth is refined, deepened, and cleansed of weeds now, so much the better for the succeeding crops, till the rotation comes round to green ones again. I will not detain you by particularizing all these operations, for you know how to perform them as well, or perhaps better, than I do; but let us come to the opening of the drills, which should be 28 inches apart, to receive the manure, which should be well rotted, and not, as is too often the case, mere straw which has been lately cast out of the stable or cow-shed; for if the manure be not well decomposed, you cannot expect an even or early growth of seeds. When the manure is spread in the drills, I run a light stone roller along them, which takes the tops off two drills and breaks down the clods. Then a drill roller, shaped like an egg with both ends cut off, to press down the manure (of which you will see the use presently), and to break any lumps of clay that may have escaped the long roller. After the manure has been spread, in order to counteract the padding of the clay in the bottoms of the drills, along which the rays of dung have been carted, I run a stripped plough to rip up the hardened earth, and then scuffle with a one-horse scuffer. This plan I only think necessary with carrots, mangels, and parsnips. Swedes do not require it. Then the earth is closed on the manure with a double plough, after some bone manure has been scattered on the dung. When all the drills are closed in, then I come to the part of the work where I adopt a system of my own, and which I never heard of being tried by any person before, but which I find to completely baffle the ravages of the turnip beetle. The usual method of sowing the seed is to run the seed-sowing machine on the top of the drill, like as if it were on the ridge of a house, and the seed is deposited in the apex of an angle, exposed to the scorching winds and drought of spring and summer. The consequence is that it does not vegetate evenly or vigorously, and the progress of the little plant is feeble, irregular, and slow, and so becomes a prey to the fly. Thus whole fields are eaten off, or perhaps a few patches of turnips are to be seen scattered here and there. Now the mode I adopt, when all the drills are closed, is to

run along them a chain-harrow, or the half of a light double seed harrow, with the pins driven back so as not to scrape up the manure, and thus take two drills in each stroke as it is drawn along by a donkey or pony. This removes the upper parts of the drills into the furrows between, and with them the clods and lumps, and leaves the fine earth for the seed bed. The shape of the drills is thus changed from sharp ridges to a succession of slight undulations, and the manure is brought within two inches or less of the surface; so that when the seed is deposited out of the sowing machine, or dibbled in, as the case may be, it is in close proximity to the manure, surrounded by earth of the finest tilth, with sufficient moisture. The consequence is that it vegetates evenly and rapidly, and as soon as the roots of the young plants touch the manure they go ahead in such a manner as to defy the fly. Whereas, if the seed were deposited on the top of the drill, it might remain several weeks (I have known seed to remain six weeks) without vegetating, from want of sufficient moisture, and the vegetated young plant would remain in a state of starvation till its little roots reached the manure so deeply seated beneath it. It lingers till it is devoured. Talking of weeds, particularly of turnip seeds, I would recommend the use of a liberal quantity, say from 5 to 7 lbs. per Irish acre, partly on account of the great adulteration of them which is practised in the seed trade, and which I am informed is done by killing rape seed, or other seeds which resemble turnip seed, and mixing these dead seeds, or dummies as they are called, among the live seeds. The process of killing, I am told, is done by steeping the seeds in some acid, or by submitting them to a certain degree of heat, sufficient to destroy the germ. The best way I have found to detect adulteration, not only of rapeseed, but of all other small seeds, is to get a piece of thin flannel, and wet it thoroughly in soft water, then scatter some of the seeds evenly on it, and keep it moist and in a warm place till such time as the seeds that are alive vegetate. The dummies will show no sign of life, and are easily discovered. If you put them to this test you will be surprised to find the amount of adulteration that exists in some cases. In the next place, summer tillage is of much consequence to all green crops, and I have found from experiments that the deeper, and I might almost say the oftener, till the spreading leaves prevent, that the ground is stirred between the drills the better, not only for the growing crop, but for the succeeding one. This I proved by a row of swedes which I only grubbed between the drills during the summer, and the consequence was, that the turnips were worse, the succeeding wheat was worse, and the meadow worse, with more scutch grass than it, than in the rest of the field, which was cut deeply with the stripped plough, and grubbed also deeply, in consequence of the ground being softened by the previous ploughing. As to thinning swedes: When the drills have been cut with the skeleton plough, I space them by crossing them with an implement which leaves them in bunches thirteen inches apart from centre to centre. Then single them with the hand hoe, so that each turnip throughout the field will be equidistant, say thirteen inches by twenty-eight inches. I think from twelve to fourteen and even fifteen inches, according to the depth and richness of the soil, the most productive distance for the swedes, and from fourteen to sixteen inches, or even more, for mangels, with twenty-eight-inch drills. The richer and deeper the soil the greater the space will require to be. If carrots and mangels are grown in alternate drills they do very well, as the mangel is much improved in size by the room it gets, and the carrot is not deteriorated by the proximity of the mangel. The mode of cultivation described in the foregoing will answer for carrots, mangels, swedes, and parsnips, except that I prefer to dibble the long roots—the mangels at fourteen to sixteen inches apart, and the carrots and parsnips at seven inches, or six inches in poor soil. To show the necessity of deep and perfect tillage, if any of you will take the trouble to examine the earth between the drills of swedes or mangels, he will find it filled with a close network of small roots running in all directions through it, in a very wasteful



manner, and to a great depth, where it has been properly tilled. I would recommend the early sowing of all green crops, because those sown early come to maturity early, and are fit to be removed from the land before it becomes so wet as to be injured by the trampling and carting unavoidable in the process of removal. It also enables the farmer to prepare his land in good condition for the succeeding crop. Again, early-sown seed vegetates more early and quickly, in consequence of the great moisture of the earth in the early season. I would say, sow carrot and mangel seeds early in April, and swedes in May. If very dry weather should succeed the sowing of Swede turnips, and when the young plant is in first leaf and progressing slowly, then is the period of danger from the fly. The best remedy I have found is, to roll frequently with a light stone roller; for the fly takes refuge between the clefts of the earth and under the small lumps of clay, which, when pressed by the roller, he becomes embedded under, and cannot escape. Also, as the roller approaches him, if he be on the

plant, he jumps off and is crushed beneath it. Besides, rolling breaks the crust on the earth, and closes it about the roots of the young plant, and protects it from drought. I am aware that some very excellent farmers in this neighbourhood give a preference to the cultivation of potatoes, as more suitable to their wants; but in these very uncertain potato seasons it is well to have two strings to one's bow. They also say that the summer culture of turnips is more expensive, but in this opinion I do not agree; for the cost of seed alone for the potato crop would more than pay for the cultivation of the turnip one. I think the soil and climate of this island better suited to the successful growth of green crops than either England or Scotland, of which we have an example this season; as in those countries, where every care and attention is lavished on their culture, they have proved an almost total failure from the dryness of the atmosphere and the soil, whereas in Ireland they are very fair crops.

## ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

MONTHLY COUNCIL: *Wednesday, November 4, 1868.*

—Present, H.R.H. the Prince of Wales, K.G., President, in the chair; the Duke of Richmond, K.G.; the Earl of Lichfield, Lord Berners, Lord Chesham, Lord Tredegar, Lord Vernon, Lord Walsingham, Sir T. Western, Bart., M.P.; Sir Watkin W. Wynn, Bart., M.P.; Mr. Baldwin, Mr. Barnett, Mr. Barthropp, Mr. Bowly, Mr. Bramston, Mr. Cantrell, Colonel Challoner, Mr. Clayden, Mr. Clive, M.P.; Mr. Davies, Mr. Dent, M.P.; Mr. Druce, Mr. Edmonds, Mr. Brandreth Gibbs, Mr. Hassall, Mr. Holland, M.P.; Mr. Hornsby, Mr. Hoskyns, Mr. Jonas, Colonel Kingscote, M.P.; Mr. Milward, Mr. Pain, Mr. Randell, Mr. Read, M.P.; Mr. Rigden, Mr. Sanday, Mr. Shuttleworth, Mr. Stone, Mr. Thompson, Mr. Torr, Mr. Turner, Mr. Webb, Major Wilson, Mr. Jacob Wilson, Professor Simonds, and Dr. Voelcker.

FINANCES.—Mr. Bramston presented the report, from which it appeared that the Secretary's receipts, during the past three months, had been duly examined by the Committee, and by Messrs. Quilter, Ball, & Co., the Society's accountants, and found correct. The balance in the hands of the bankers on the 31st October was £1,483 2s. The quarterly statement of subscriptions and arrears to the 30th September and the quarterly cash account were laid on the table. The arrears then amounted to £1,417.

JOURNAL.—Mr. Thompson, Chairman, reported that the Committee had examined and passed Mr. Goodwin's account for editing the last Number of the Journal, amounting to £85 7s. 6d. Mr. Goodwin was requested to undertake to bring out the February Number of the Journal, in accordance with the resolution of the Council of July last, Mr. Goodwin to receive £100, including travelling expenses. Mr. Lawes' application for permission to publish his paper on Wheat in the last Number of the Journal as a separate pamphlet was agreed to on the usual conditions.

ESSAY PRIZES.—In Class VIII. the judges award the prize of £15 to the paper bearing the motto, "Abundance," which, on being opened by the President, was found to be written by Mr. R. L. Everett, Rushmore, Ipswich. The Essay bearing the signature John Chambers could have been commended, had it not been signed by its author. In Class VII. the prize of £10 is awarded to Mr. Robert Valentine, Burcott Lodge, Leighton Buzzard.—This report was adopted.

AGRICULTURAL EDUCATION.—Mr. Holland, M.P., reported that the Committee had resolved that applica-

tion be made to the Council for another grant of £200, for the purpose of carrying out in 1869 the same scheme of examination as that which was adopted for the current year, which was acceded to.

IMPLEMENTS.—Colonel Challoner, Chairman, reported that the Committee recommended the offer of prizes for a sheaf-binding machine at the ensuing Manchester meeting, and that the sum of £20 be given in the class. An amendment was moved by Mr. Dent, M.P., supported by Mr. Thompson, that the sum offered should be reduced to £10; but, on a division, eight votes only were given for the amendment, and the report of the Committee was carried. The offer of £20 for the class of carriage with low body, adapted for moving stock, implements, &c., on a farm, in the most convenient form, was also adopted by the Council.

SHOWYARD CONTRACT.—Lord Vernon reported that the contractor's account, as certified by the surveyor, had been considered and allowed. The Committee had resolved that, in order to secure uniformity in the system of valuing works done by special contract, all future special contracts shall be based on the prices inserted in the general contract, and be subject to the same discount of 2½ per cent. The surveyor's report had been considered, and certain recommendations had been adopted. Colonel Challoner moved that a detailed account of the expenses connected with the buildings, fences, surveyor's, and contractor's charges for the showyard at Leicester be prepared and laid before the Council at the first meeting in February, which was agreed to.

SECRETARY AND EDITOR.—Mr. Thompson reported that the Committee met on the 2nd inst., and examined the testimonials of 46 candidates for the office; of these two were disqualified from being sent in too late; of the remaining 44, seven were requested to attend a meeting of the Committee on the following day. The seven selected for a personal interview were Captain Burgess, Dr. Bond, and Messrs. Eastlake, Jenkins, Harrison, Little, and Dr. Nicholson. At a further meeting of the Committee on the 3rd instant, after a personal interview with each of the seven selected candidates, it was unanimously resolved that Mr. H. M. Jenkins be recommended to the Council to fill the post of Editor and Secretary of the Society from the 1st January next. Mr. Jenkins is at present discharging the duties of Assistant Secretary, Curator, and Librarian of the Geological Society of London: he is also the Editor of the Quarterly Journal of that Society, and

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Sub-Editor of the "Quarterly Journal of Science." His present duties are, therefore, very much of the same character, as those which he would be called upon to perform if appointed to the Secretary and Editorship of this Society. Mr. Jenkins satisfied the Committee that he possesses intellectual qualifications of a high order, and his thorough knowledge of geology, chemistry, botany, and zoology will give him considerable assistance in acquiring a thorough knowledge of agriculture, which it will be his first object to attain: This report was adopted, and on the motion of Mr. Torr, seconded by Mr. Bowly, Mr. H. M. Jenkins was then unanimously elected Secretary and Editor of this Society. It was resolved, on the motion of Mr. Brandreth Gibbs, that the Finance Committee be requested to make the necessary arrangements with Mr. Jenkins as the agreement to be signed by him, and as to his sureties, &c.

**LEICESTER SHOW PROTESTS.**—The following report of the Stewards of Stock on the protests at the Leicester meeting was presented by Mr. Bowly:

"Mr. Treadwell has sent us a certificate from three of his neighbours, saying his sheep were close-shorn at the proper time. With due respect for these gentlemen, we consider that so long as the Council employs inspectors they are bound to act on their decision. Although the shearing inspection sometimes leads to unpleasant feeling, we cannot recommend its discontinuance, as we are of the opinion that it insures the sheep generally being shown in a less artificial state.

"Mr. George Turner's protest against Mr. Walter Farthing's painted Devon bull-calf.—Mr. Turner's protest was not made in time, and as the judges inform us they should have given Mr. Farthing's calf the prize if he had not been coloured, we cannot do otherwise than confirm their decision. We think, however, such attempts at deception cannot be too strongly

condemned, and we recommend that this expression of our feelings be conveyed to Mr. Farthing.

(Signed)

"E. BOWLY,

"DAVID REYNOLDS DAVIES."

Mr. Dent having moved that the prize in question be withheld from Mr. Farthing, a discussion ensued, at which the Duke of Richmond, Lord Berners, and Mr. Clayden took part, when the Secretary was instructed to invite an explanation of the circumstances from Mr. Farthing. On the motion of Colonel Challenger, the report was confirmed by 23 ayes to 8 noes.

On the motion of Mr. Brandreth Gibbs, seconded by Mr. Dent, the Council resolved that in future the advertisements calling the general meetings of the Society shall give the heads of the agenda of such meetings; and that the advertisement for the May meeting shall specially announce that the President, Trustees, Vice-Presidents, and 25 members of Council will then be elected by the general body of the members of the Society.

Mr. Jacob Wilson, having called attention to the present system of veterinary inspection in the show, moved that at the Manchester show in 1869 no veterinary inspection of horses be required, except when considered necessary by the judges, who shall be accompanied by the veterinary inspectors. This resolution was agreed to.

The Council resolved that live stock intended for exhibition at the Manchester meeting should arrive on Saturday, July 17, 1869, and that the show should close on the following Saturday evening, July 24.

The Council decided that the general meeting of the Society should be held on Wednesday, the 9th Decem-  
at noon.

## FARM-YARD DUNG UPON CLOVER.

The practice of putting farm-yard dung upon the clovers is becoming more general, and it appears to increase in favour more and more every year. No better evidence of the successful results which attend this practice could be given than is applied by this fact; for, after all, we must come back to the results of the practical man as the proof on which alone we can rely. The importance of the clover crop is not only to be looked at as regards the growth of herbage produced, but also in its influence upon the wheat crop. If a strong growth of clover has been gained, it may be confidently asserted that it will be accompanied by a good clover-layer for ploughing-in for the wheat; and it is to attain this combined result that the use of farm-yard dung in the summer months is chiefly carried out. In practice it is found very desirable to make such an application as promptly after the mowing has been finished as the removal of the hay will permit.

It is probable that this is desirable because of the protection which is thus given to the roots of the growing plant, which by the action of the scythe has been left in a very unprotected state and liable to be scorched up by continued dry weather. It is also especially desirable because of the fertilizing nourishment which is thus placed within reach of the plant, and which acts as a powerful stimulant to its general growth. The success which attends the attainment of these results very chiefly depends upon the manner in which the manure is applied to the land, and upon the condition of the manure when it is distributed over the soil.

It was at one time held that the spreading of farm-yard dung upon the land in hot weather was an extra-

vagant and wasteful mode of using such manure. It is argued on the one side that such exposure enabled the sun and hot air to carry away the volatile ingredients of the manure, and that when the ammoniacal constituents of the dung were thus removed the residue was of comparatively small value. This was met on the other hand by the statements of those most interested in the success of the trial, by a declaration that practically no such loss arose, and the practice was justified by the results. In practice also showed that for this purpose the farm-yard manure should be well-rotted and reduced into a thorough state of decay, and here was the secret of the success. Had this same manure been applied fresh it would not have produced as good results. Loss, and probably a very considerable loss, would have been the result; for in the one case we should have had the farm-yard in a state of active decomposition, and the sun would have drawn off much of the ammonia it contained; whereas, by using well-rotted dung, which has become short by occasional turning, the chief portion of the ammonia has changed from its volatile condition, and its consequent liability to loss, into a volatile but fixed state. Thus, whilst safe from the sun and air, it was quite ready for being carried into the soil by the first shower of rain, and there made use of immediately by the growing crop.

If we compare this practice of applying farm-yard dung to the clover crop in the summer with that which even more extensively carried out by its application in the winter month, we cannot fail to notice a very strong contrast; and in no respect is this more worthy of our attention than in the condition of the dung. That which

condition of decay which is so desirable for summer use is not advisable for winter use. In the summer the clover plant is in a condition of active growth, and the solubility of the manure is desirable, for the rapid supply is met by activity in the clover root in making use of it. In the winter the condition of growth is altered: activity is replaced by sluggishness, and the large supplies which at one time could be advantageously used would now be wasted to a great extent. It is therefore desirable that when farm-yard dung is used upon clovers in the winter that it should be fresh and long.

Another advantage which results from the use of dung in this fresh state is the protection which the weakly clover gains during severe weather. Growth is much more continuous under such conditions, and the roots make far greater growth under the encouragement and protection thus given than under other circumstances. The growth of the root is practically an accumulation of power for growth when the spring season is favourable for the production of leaf. Progress in the growth of the root secures a proportionate increase in the upper growth when the fitting time arrives. If the plant be well established and firmly rooted in the soil, the best foundation has been laid for its future luxuriant growth; but when the young plant is not firmly established, various circumstances check and often stop its growth, which would have produced no effect upon a strong and healthy plant.

One of the great advantages of the use of dung in winter may be traced to this action, inducing as it does an active and vigorous growth. There is scarcely any crop in which the ultimate result of the growth is so accurately indicated by its early growth. A poor start is rarely followed by a good crop, whereas if the early stages promise a luxuriant growth the result is most hopeful. The help and shelter given to the clover in the winter enables its successful cultivation to be carried out

upon soils where failure would otherwise have marked the attempt, and the same is frequently observable upon land which is getting tired of the crop. This need not cause surprise; for the manure thus supplied encourages the clover-root to strike more deeply and spread more widely, and thus it gets increased supplies of nutriment.

In many parts it was the custom to dung the land for wheat, it being considered a necessary preparation for this corn crop; but this practice has to a large extent yielded to the prior claims of the clover. Some have given up the practice of putting on dung for the wheat, and use the manure upon the clover after mowing; others use the manure still earlier by putting it upon the young seeds. Both of these alterations, however, may be looked upon as a preparation for wheat, and in the majority of cases the earlier use of the manure is even more beneficial to the wheat than its direct application for the corn crop. In point of fact, the intermediate growth of clover may be looked upon as promoting a modification of the fertilizing element of the manure, whereby its character is improved for the corn crop, and its quantity increased. For, although by the use of the manure an active growth of the clover is encouraged, and a heavier crop of herbage is removed from the land, the strength of the clover layer being increased, an improved growth of the corn crop is sure to result.

The practice of manuring the clover has much to recommend its more extended adoption; for, whilst the success which attends it gives proof of its advisability, the increasing area over which it is carried out shows how very general and regular it is in its influence. The varying influence of soil and climate do not appear to diminish its beneficial action; and on many farms the only limit which now practically bounds its adoption is the amount of farmyard manure which can thus be appropriated with due consideration to the demands for other parts of the farm.

## HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.

The monthly meeting of the directors of this Society was held on Wednesday, Nov. 4, in Edinburgh, in their chambers, No. 3, George IV. Bridge, Mr. Dundas, of Arniston, and afterwards, Mr. Graham Binny, in the chair.

On reports by the Local Committee on Implements, silver medals were awarded to (1) Benjamin Reid and Co., Aberdeen, for improvements in fixing the coulter of their general purpose lever drill, combined with the power of adaptation to act as a horse-hoe when required; (2) to George Sellar and Son, Huntley, for the improved form and mode of fixing the tines of their zigzag harrows; and (3) to J. Bissett and Sons, Blairgowrie, for their reaping machine exhibited at the trial held at Portlethen, after the Aberdeen Show.

The SECRETARY stated that the report by the Local Committee on the ploughs tried at Broomhill, near Aberdeen, on the 24th of October, had not yet been received, but that it would come before the board at their next meeting on the 2nd of December.

On the motion of the CHAIRMAN, it was remitted to the Committee on General Shows to fix the money premiums, and adjust the regulations for the show to be held at Edinburgh next year.

The SECRETARY read a letter from the Town Council of Edinburgh, agreeing to give the West Meadow Park as a site for the showyard; and he was instructed to convey to the Town Council the thanks of the Board.

The following requisition, addressed to the Secretary, and forwarded to him by Mr. Dudgeon, of Cargen, was read: "Dumfries, 5th August, 1868. Sir,—It being now eight year:

since a meeting of the Highland and Agricultural Society has been held at Dumfries, we think the time is now approaching when it would be of great advantage to this district to have another show here; and we would feel obliged if you would take an early opportunity of laying before the directors of the society our request with regard to this matter, feeling assured that it is the universal wish of the district that such a meeting should be held. And we take this opportunity of informing the directors that we will do all in our power to promote the success of the meeting. We would suggest that if it does not interfere with the other arrangements of the society, that the meeting be held here in 1870."

On the motion of Mr. Dundas of Arniston, seconded by Mr. Campbell Swinton of Kimmerghame, it was unanimously resolved to recommend the general meeting in January to comply with the request, and it was remitted to the Committee on General Shows to suggest the classes of stock for which premiums will be afterwards offered, and to make other arrangements.

The following remits were made:

1. To the Committee on Office-bearers to report on the vacancies for 1869.
2. To the Reading Committee to consider and report on the papers lodged in competition.
3. To the Committee on Premiums for Essays and Reports to revise the list of 1868 and consider the suggestions for 1869.
4. To the Committee on District Competitions to revise the reports for 1868 and consider the applications for 1869.

A letter was read from Mr. Curror on behalf the Edinburgh Christmas Club, of which he is honorary secretary, expressing a hope that the directors would double the grant of £50 voted to the club last year, and stating that it was proposed this year to apply the money in payment of the ordinary club prizes. The application was supported by Mr. Mylne, Niddrie Mains; and, after some discussion, it was, on the motion of the Chairman, resolved to repeat the grant on the understanding that the subject of grants for fat-stock shows will be brought before the general meeting of the society in January.

On an application by Mr. Hugh Rose, Inverness, four silver medals were placed at the disposal of the Northern Counties' Fat Show Club for (1st) best ox, (2nd) best cow or heifer, (3rd) best pen of sheep, (4th) best pig—to be competed for at Inverness on the 4th of December next.

Letters from Mr. Grant, Kincorth; Mr. Geddes, Orbliston; Mr. Scott, Glendronach; and Mr. Harris, Earnhill, on the subject of a grant to the Forres and Northern Fat Cattle Club for 1869, were remitted to the Committee on District Shows—the club being already on the list for medals for the current year.

A communication was read from Messrs. James Stewart, J. and W. Martin, and Thomas Knowles, Aberdeen, suggesting that the prizes of the medium gold, silver, and medium silver medals, now offered as first, second, and third premiums for fat stock at the society's general shows, should in future be £15, £10, and £5; and that the successful exhibitors of fat stock should each receive a medal in addition to the money

prize. The letter was referred to the Committee on General Shows.

A letter was read from Mr. Hamilton Hay, secretary of the Scottish Society for the Prevention of Cruelty to Animals, calling attention to the want of some rule with reference to the milking of dairy stock within a limited time, prior to the passing the judges in agricultural exhibitions. Mr. Hay said that "at present practices are resorted to which create a very unnecessary amount of suffering, to say nothing either of the injury to the animals kept so long in milk, whether by artificial obstruction, or simply from want of natural relief, or of the unfairness of such practices towards other competitors, who do not resort to such inhuman methods of showing a good milker," and it is thought that "the evil would be most effectually met by some resolution or recommendation from the Highland Society, which would doubtless be speedily adopted by minor affiliated societies." The communication was, on the motion of the Chairman, remitted for consideration to the Committee on General Shows.

Communications from Mr. Thomas Stevenson Johnstone, and from Mr. Taylor Howwood Johnstone, on the potato disease; and from Mons. X. de Bouge in regard to his work entitled "The Continental Tutor," were brought under the notice of the board.

The premiums awarded at the Aberdeen Show in July last were confirmed by the board, and the Chairman was authorized to sign the necessary precepts to be issued by the Secretary.

## THE CENTRAL FARMERS' CLUB.

### THE UNDEVELOPED POWER OF BRITISH AGRICULTURE.

The first monthly meeting for discussion, after the summer recess, took place on Monday evening, November 2, at the Club-house, Salisbury-square, Mr. C. S. Read, M.P., in the chair. The subject to be introduced by Mr. J. J. Mechi, of Tiptree Hall, Kelvedon, was "The Undeveloped Power of British Agriculture."

The CHAIRMAN, after a very cordial greeting, said: Gentlemen,—I believe it is permitted to the Chairman of this meeting, after our long summer recess, to make a few remarks on the agricultural season through which we have passed (Hear, hear); and I will do so in a very few words. Last May it was, I think, admitted on all sides that a more glorious prospect never dawned upon the face of England (Hear, hear). Our pastures were full of luxuriant grass; our wheat crops were undeniably in an excellent position; our spring crops had been got in in most capital order; and they were all promising an abundant harvest. But it pleased Providence to visit us with an intense and protracted drought—a drought which was, I believe, without any parallel in my recollection and, I dare say, in the recollection of almost every gentleman present, and the effects of which will be felt for many a long year (Hear, hear). We have, I think, in this kingdom, a good crop of wheat (Hear, hear)—a crop excellent in quality, and plentiful and abundant in quantity (cheers). But I believe there is a very short crop of all spring corn. We in Norfolk, with our hot soils and our dry climate, have suffered, I suppose, more than almost any other district of England; our grass was clean burnt up, and we have further to deplore a very short crop of hay, and an almost total absence of anything like roots.

Mr. THOMAS CONGREVE: That remark applies to the whole kingdom (Hear, hear).

The CHAIRMAN: Now that brings us very close to the subject for discussion. The "undeveloped power of British agri-

culture" will have to tell us this winter how we are to maintain our stock without roots (Hear, hear). There is another thing which greatly affects us in Norfolk, and it is this: The loss of our clover and grass seeds in the present year, will militate very considerably against anything like a full crop of wheat in the year 1870. Well, gentlemen, we have to-day to discuss "the undeveloped power of British agriculture," and to no hands could that question be so well committed as to those of our friend, Mr. Mechi (cheers); a man who has not merely an European reputation, but a world-wide fame (Hear, hear), for I will venture to say that where anything like advanced agriculture is practised there the name of Mr. Mechi is known and honoured (cheers). If I might be allowed to say one thing more in that gentleman's presence, I would just qualify my praise by hinting in the most delicate terms, that when a man is a very skilful pilot, he should not only show us those channels through which we may safely sail, but he should also tell us of those rocks, shoals, and quicksands on which we may be wrecked (Hear, hear). Now if I recollect aright, there are a few rocks, shoals, and quicksands which Mr. Mechi has struck, but we never hear of them now. It is incumbent on him to tell us all about these, besides laying down on a chart the channels through which we may sail to future prosperity (Hear, hear). Gentlemen, I will not detain you any longer, but will now ask Mr. Mechi to read his paper, which I am sure will delight us all (cheers).

Mr. MECHE then said: Mr. Chairman and gentlemen—I the land of Britain were owned by such noblemen and gentlemen as I could name, and farmed by such members of our Club as I could designate, there would be much less need for me reading this paper; but we have to deal this evening with the whole area of the United Kingdom, containing 77,513,000 acres, the utilized portion of it, 45,491,097 acres, being but or occupied by no less than 1,069,452 farmers, of which the

and claims nearly 600,000. I think we shall all agree that the wealth, power, dignity, and happiness of this kingdom depend fully as much, or probably more, on the proper use of its oil as on the utilisation of its other industrial arts, and its mines, fisheries, commerce, and shipping. We must admit that the stomach is the predominant power, demanding regular and continuous supplies, to procure which, at whatever cost, all other interests must subserve or succumb. We have very certain proof of this, for although always dependent on foreigners for one-third (more or less) of our daily bread, an increase of that dependency, caused by a failure in our harvest, knocks down Consols, depreciates every other security, involves us in financial and commercial panics and embarrassments, stops progress, and throws out of employ large masses of our industrial population. In fact it comes to this, that the greater or less home production of our food acts barometrically for good or for evil on the national welfare. Admitting this to be so, it follows that it is our primary duty and interest to extract from the soil by every profitable means in our power the greatest possible amount of human food, just as by improved, costly, and scientific means and machinery we are enabled to clothe ourselves and other nations in cheap and plentiful clothing, or supply them with other requisite manufactures. My object, therefore, in reading this paper, is to inquire whether we have developed sufficiently or perfectly our agricultural power, and if not why not, and how great is our opportunity of so doing? British agriculture (as regards, landowners, tenants, land stewards, and lawyers) is at present in a transition state. It may be represented, jocularly, as old Mr. John Bull, jogging along on the old road, looking wistfully but doubtingly at the new road which steam-power has made for him, but which is still unused except by a few daring agriculturists, who seem to be calling out to the old gentleman—"Come on, don't be afraid; see how fast, safe, and cheap we go; this is the right road to profit, you will find it better and cheaper than the old one—come and try." But the old gentleman shakes his head, and say, "I shall take time to consider of it, and make up my mind; for your new ways require much capital, and give much more trouble than the old ones." Joking apart, I ventured to suggest this subject for discussion by our Club, because I have an honest conviction, resulting from 25 years of practice and observation, that our agriculture still presents a vast field for the profitable investment of greatly increased skill and capital. Let us take stock of our present agricultural position, remembering that our acres have no children, and that our population has increased from 10 millions to 30 millions since the year 1800. The present food-producing power of British agriculture is shown in the Board of Trade returns for 1866, issued in 1867. According to them, the whole area of the United Kingdom consists of 77,513,585 acres, and our population 30,315,072; but only 45,491,097 acres are accounted for as under crops, excluding mountain and waste; so that we have still a considerable portion of 32 millions of acres to operate upon. In Ireland alone there are 4,423,340 acres in bog and waste. We have in

	Acres.	Occupiers.
England .....	32,590,397	338,588
Scotland .....	19,639,377	78,792
Wales .....	4,734,486	52,072
Ireland .....	20,322,641	600,000
Isle of Man .....	180,000	
Jersey .....	28,717	
Guernsey, &c. ....	17,967	

Total area ..... 77,513,585

The cropping of the United Kingdom in the area under cultivation is as follows:—

	Acres.
Corn crops .....	11,431,440
Root and green crops .....	4,951,796
Clover and grass .....	5,679,433
Bare fallow .....	953,998
	<hr/>
	23,016,667
Permanent pasture not broken up in rotation, exclusive of heath or mountain land .....	22,156,541
	<hr/>
Total under cultivation .....	45,491,097

In the United Kingdom we have live stock: Cattle, 8,731,473; sheep, 33,817,951; pigs, 4,221,100. We have no estimate in England of the value of our live stock, but the returns in Ireland are more minute and explicit. There the valuation is, per head of

Cattle (3,629,352) .....	£6 10 0
Sheep (4,822,244) .....	1 2 0
Pigs (852,443) .....	1 5 0
Horses .....	8 0 0

The live stock of Ireland, including 522,865 horses, is valued at £34,000,000. I hope our Board of Trade returns for England will some day be much more minute, and give us also the number of horses and estimated value of live stock. We also ought to know how much of our country is occupied by roads, canals, railways, rivers, lakes, fences, woods, and towns, cities, and villages, &c., that we might more accurately estimate our undeveloped power of cultivation. It will be noticed in the foregoing returns that in pluvial Ireland hairy animals greatly exceed the woolly ones, while the latter are much in excess in dry and cereal England. Wet and mild climates are not so well suited to the woolly tribe. Cattle also greatly preponderate in English pluvial counties.

HOW MUCH OF HUMAN FOOD DOES THE SOIL OF BRITAIN YIELD, AND WHAT IS ITS MONEY VALUE RECEIVED BY THE BRITISH FARMER?—Unfortunately, our food statistics are at present so general and incomplete, that there are no data for an exact computation. I will, however, endeavour to test it by a roughly-estimated consumption (per head of the population) of home-produced food and drink—I mean the sum that reaches the farmer's pocket, independent of Malt-tax or Spirit-tax, or trade and intermediate profits and charges:—

*Annual consumption per head.*

Wheat, 4 bushels at 6s. 6d. ....	£1 6 0	... £39,000,000
Meat, 52lb., at 6d. ....	1 8 2	... 42,250,000
Potatoes .....	0 10 0	... 15,000,000
Milk, butter, cheese, eggs, and poultry .....	0 11 0	... 16,500,000
Oats (as meal, &c.) .....	0 5 0	... 7,500,000
Barley, hops (as beer, &c.) .....	0 11 0	... 16,500,000
Fruit and vegetables .....	0 2 0	... 3,000,000
	<hr/>	
	£2 13 2	... £139,750,000

Potatoes in Ireland and oatmeal in Scotland and the north of England are the principal articles of food. Oatmeal is also consumed in Ireland. England consumes more wheat and meat per head than either Scotland or Ireland. Our population consume, in addition to the above, a large amount of foreign agricultural produce, probably to the extent of £1 5s. per head, exclusive of tea, sugar, or coffee.

Consumed by 30,000,000 of population, at £4 13s. 2d. per head .....	£139,750,000
Wool, hides, tallow, and offal .....	10,000,000
Hay and corn consumed by 500,000 horses (non agricultural), at £20 per annum .....	10,000,000
60,000 horses (non-agricultural) sold annually by farmers, at £25 each.....	1,500,000
	£161,200,000

This would give about £3 16s. per acre for the whole of the United Kingdom (returned by the Board of Trade at 45½ millions of acres under cultivation). There are probably a million of farm horses, consuming annually £20,000,000 of farm produce, for which the farmer gets no money payment. I therefore take no account of this, nor of the horse he rears for farm use. That million of horses probably consume the produce of 5,000,000 acres, landlord's measure. M. Lavergne, the celebrated French agricultural statistician, in his valuable book, "On the Rural Economy of England," published in 1855 by Blackwood, and ably translated by a Scotch farmer, thus estimates our gross acreable produce:—

England .....	£3 15 0 per acre
Lowlands of Scotland, Ireland, and Wales..	1 17 6 "
Highlands of Scotland .....	0 8 4 "

His total agrees very nearly with mine. He puts it at £164,000,000, half animal, half vegetable; but his estimate of meat at 8d. per lb., is too high by 1½d. I estimate three-fifths vegetable, two-fifths animal. I would strongly recommend a perusal of his valuable work. Although M. Lavergne considers France equal in soil and climate with our own, he estimates French produce at only one-half the acreable value of ours. This is somewhat to our credit by comparison. I roughly estimate our—

	Acrea.	Value.
Corn Crops.....	11,481,940	£88,000,000
Potato do. ....	1,155,609	20,000,000
Green and root do.....	8,400,000	10,000,000
Clover and Grass .....	5,679,438	17,000,000
Bare fallow .....	953,998	—
	22,017,167	130,000,000
Permanent pasture, exclusive of mountain and waste .....	22,156,441	50,000,000
	44,173,608	180,000,000
Consumed by one million of farm horses, for which the farmer receives no money payment .....		20,000,000
		£180,000,000

M. Lavergne estimates the rent of our land as follows:—

England .....	20s. per acre.
Lowlands of Scotland and Wales .....	10s. "
Highlands of Scotland .....	10d. "
Three-fourths of Ireland .....	13s. "
North-west of Ireland .....	5s. "
General average .....	13s. "

Our Board of Trade return take no account of mountain, heath, or waste, therefore probably the average rental of the 44½ millions of acres so returned would be 20s. per acre (see M'Culloch, Porter, and Spackman), and the value of the land £25 per acre. Having stated what is, I think, about our acreable agricultural production, I shall endeavour to point out presently what it might be if we brought to bear upon the improvement of the soil a great increase of capital and intelligence. But such results can only be produced gradually. I know many intelligent farmers who hired their farms when steam cultivators, steam engines, and other expensive ma-

chinery were not much in vogue. Such men admit candidly that they would, if they could, now greatly diminish their holdings, so that their capital would be more in proportion to modern agricultural requirements, especially to the keeping of mere stock, fed on imported food. Land-owners, too, are gradually arriving at similar conclusions in regard to their estates. These changes and investments will necessitate a valuation for improvements and security of tenure by lease, and probably a modification and enlarged freedom of action as regards entailed estates. I am not so sanguine as to expect that such vast changes as I indicate and consider necessary and profitable can take place, except gradually, by the force of opinion and discussion, and by the necessity for meeting the pressure for food for our rapidly increasing population.

WHAT MIGHT THE SOIL OF BRITAIN PRODUCE?—I have no difficulty in answering this question. The soil of Tiptree, poor as it is, and naturally much below the average of the kingdom in quality, has enlightened me on this matter. The 25 years of practical residential experience which I have had there has taught me that Britain could profitably feed all her children without foreign aid, if she chose to do so. This is no dream or speculation, it is a fact, true and indisputable; but I do not expect every one to believe it, but rather the reverse. Tiptree Hall Farm is an instance of increased development with profit. Rent, farmer's capital, and employment of labour have been all doubled, and the produce and acreable profits proportionally increased. This year the produce is as follows, the farm being 170 acres, landlord's measure:—wheat, 450 qrs.; barley, 27; oats, 40; beans, 18; peas (for London), £66 net; red clover-hay and grass-hay, 30 tons; 6 acres of good mangal, 150 tons; and 6 of strong green tares, followed by cabbage; some 20 acres of rape, white turnip, and cabbage. The live stock consists of 40 bullocks and 25 sheep. The average produce of wheat at Tiptree is 40 bushels per acre; this good year it is 48 bushels per acre. The average of the United Kingdom is 27½ bushels; this good year, 32 bushels per acre. The percentage of wheat at Tiptree is 33 of the whole farm, of the United Kingdom only 9 per cent. At Tiptree permanent pasture is only 8 per cent; the United Kingdom 43 per cent. The rent of Tiptree is 40s. per acre; the rent of the United Kingdom 20s. per acre. The gross produce at Tiptree is equal to six rents per acre (£12); the gross produce of the United Kingdom, 3½ rents per acre (£3 15s.). The meat made at Tiptree is £5 per acre; the meat made in the United Kingdom, £1 per acre. The quantity of manure made exactly follows the quantity of meat made, therefore Tiptree makes five times as much manure per acre as the United Kingdom. Can we, then, wonder at its produce being greater? The labour employed at Tiptree is 50s. per acre; the labour of the United Kingdom, probably only 12s. per acre. The tenant's capital at Tiptree is £17 per acre; that of the United Kingdom under £5. Corn, cake, &c., consumed by live stock at Tiptree, £3 10s.; corn, cake, &c., consumed per acre in the United Kingdom, 13s. per acre. According to the Tiptree returns, our 44½ millions of acres would give £534,000,000; our present returns are £170,000,000—increase, £364,000,000. But we need not be alarmed by this prospect of possible increase. There is no fear of our arriving too soon at this happy condition. It will take centuries to remove the impeding causes of non-improvement, and within that period (assuming that we have not yet as a nation reached our zenith), population will have overtaken even improved production. Although so large my produce

How small comparatively is the cost of seed, horse labour, and other expenses? Although I have quoted Tiptree as an instance, I could name many farms and many estates, equally or even better farmed, and were the tenant's capital is from £20 to £30 per acre. Norfolk and Lincolnshire have become the butchers and bakers for the metropolis by their enormous purchases of stock food imported on the farm and not grown there; and by the great quantity of resulting manure and corn. Security of tenure, valuation for improvements, and a freedom of action, have there attracted a fixed and ample capital.

## TIPTREE HALL FARM BALANCE-SHEET.

Average price of Wheat per qr.	Net surplus for Landlord and Tenant.	
1865 ... 40s. 2d. ... ..	£543	7 4
1866 ... 46s. 6d. ... ..	573	11 6
1867 ... 61s. 7½d. ... ..	773	5 10
Tenant's Capital.	Profit on Tenant's Capital at Tiptree Farm.	Per acre.
£2165 ... ..	£238=11 per cent....	£1 19 5
2503 ... ..	268=10½ " ..	1 16 7
2571 ... ..	463=18 " ..	3 1 2

Having thrashed and sold most of my wheat I am enabled to calculate safely that the profit on tenant's capital for 1868 will be quite equal to, perhaps more than, that of 1867. The average price of wheat for 1868 will probably be above 60s.

## APPORTIONMENT OF FARM CAPITAL.

	1866.	1867.
Live stock.....	£6 0 0	£6 10 0
Horses .....	1 0 0	1 0 0
Tillages, &c. ....	2 10 0	3 10 0
Implements and machinery.....	2 10 0	2 10 0
Hay, corn, &c., unsold.....	3 0 0	3 5 6
Tenant's capital per acre .....	£15 0 0	£16 15 6

**CAUSES OF NON-DEVELOPMENT.**—This is a painful subject, but we must deal with it candidly and fearlessly. Agriculture is not yet treated on commercial or business principles. When it is looked upon as a business by our landowners, their agents, and tenants, the practice in letting, hiring, and holding will be more assimilated to the customs of our towns and cities. Landowners in the country seem indisposed to part with the control of their land for a period, while in a town they cheerfully grant a 99 years' building lease, or a 21 years' lease of premises. Here the tenant has not only undisputed possession, but, if he effects improvements, has also the right of selling his lease and his improvements to proper persons, without interference by the landlord or his agents: here there is no ground game or annoying gamekeeper. See what consequences flow from this sense of security and freedom of action. Men of spirit and capital pull down old houses, and raise upon their ruins business or manufacturing palaces. Under such circumstances our good old city of London is being rebuilt. Everything progresses and improves—property is constantly and rapidly increasing in value, ultimately much to the benefit of the original or ground landlord. All this results from security of tenure and freedom of action; and where these principles are carried out in agriculture, depend upon it, similar results will take place—it must be so, as a natural consequence; and I am delighted to be able to say that I know of great and improving estates where the tenants are secured by leases, with the addition of a valuation for unexhausted improvements, and political freedom, and in some cases the right of sporting. I will give an instance of what is doing very generally in our

good old city of London, where land has advanced in some cases to £2,000,000 per acre (some £60 or £70 per square foot). Not long ago I purchased of a friend, for a bank with which I was connected, an old, tumble-down house, not far from the Royal Exchange, that used to be let for £160 per annum. The new conditions were, a lease for 80 years, at a ground rent of £500 per annum—the tenant to build a house at a cost of £3,000. Well, we erected one that cost £8,000. In 18 months it became necessary to close our bank (having first paid every depositor in full without delay). The lease was sold for £10,300, and we realised an increase of more than £4,000 on our expenditure. So it has been in many other cases, and so it would be in degree in agriculture, if men of capital had security of tenure, freedom of action, power to sell or transfer their leases, and thus derive the proper advantages of their improvements; we should then no longer witness that wretched unalterability, which is too often the present characteristic of British agriculture—the antiquated gable-ended tenements, called farm-houses, with their projecting beams and ceilings a few inches above one's head, the old crooked Adam-and-Eve fences, and the antiquarianism of the whole concern, which indicate a primitive, unaltered, and unbusiness-like condition of things, unworthy of the rapidly-increasing intelligence, wealth, enterprise, and population of this great commercial, manufacturing, and bread-and-beef-consuming country. I recently read a paper before the Midland Counties Farmers' Club at Birmingham, where I met the most wealthy, intelligent, and enterprising farmers of an extensive district. In the discussion that followed it was painful to me to hear from every speaker that the want of security of tenure and valuation for improvements sat upon them like a heavy cloud, and prevented them from investing increased capital in what they admitted to be necessary amendments. To my surprise, they were cramped and restricted in action by the knowledge that they might be turned out of their holdings at a six months' notice! I could hardly believe that I was in the commercial atmosphere of Birmingham! Would any man in Birmingham or London make an improvement on his premises under such circumstances? It may be true, and is, in fact, true, that on many noble estates tenants are seldom changed, but they may be at any moment, by death, by temper, by game, or by politics. I have seen enough of this to know that the tenant always feels insecure, and that this fear operates as a bar or impediment to agricultural development. It is particularly annoying and repulsive to a man of capital, intelligence, and independent feeling, that the game on his farm should be alienated from him, and his land appropriated and opened to a stranger and strange gamekeeper for a paltry consideration of a shilling per acre. I know some noble and wise landowners who do let the shooting to their tenants, and thus attract a superior class of capitalists. It astonishes me that we have even progressed thus far in agriculture under the present almost feudal restrictions. A man farming 500 acres, with a capital of £10,000, is entitled to a good and suitable house and farm buildings, and the right of shooting; but now I know of farms, larger than that, with wretched old buildings a century or two old, and only suited to the circumstances of that remote and primitive period. The consequence is, that spirited men of capital will have nothing to do with such farms. Give them a 30, 40, or 50 years' lease (transferable), on condition of their laying out a large sum on a good new house, farm-buildings, and labourers' cottages, draining, mak-



ing road, &c., and you would soon see estates in a very different and improved condition, much as you do in towns, where cabbage gardens have been changed into Belgravias and Tyburnias, and wealth of the noble owners presently and ultimately enormously increased. It is certainly, in my opinion, far more dignified to be the owner of an estate occupied by men of great intelligence, capital, and independence, than of one held by humble and servile dependants. Not only so, but as a question of £ s. d. there is no mistake as to which is most advantageous to the landowner and the country at large. If the same fear of parting with property for a given period had operated in our towns and cities as in our rural districts, the former would be now in a most antiquated condition. The Scotch system of 19 years' leases has improved farming and raised the rent of land in Scotland. Farmers now often buy farm and mortgage them, so that they may be secure in their tenancy, and have the full benefit of their improvements. If companies were formed for the advancement of capital on mortgage for long periods, say 20 years or more, on equitable conditions, this practice would be considerably extended. Now the expenses of frequent transfer of the mortgages militates against the system. Among the many obstructions to agricultural development may be mentioned the existing ownership of land by entail, and this must be extensive, seeing that one-half of England is owned by only 150 individuals, while one-half of the 19½ millions of acres of Scotland are owned by only 12 persons. The owners of the entailed properties having only a life interest in them, could do little in improving them until some recent Acts of Parliament permitted a certain charge to be made annually on the estate for improvements. As most of our great landowners are legislators, let us hope that their well-informed and intelligent minds will still further untrammel the land, so that it may produce more abundantly food for the people and profit for themselves. A vast proportion of the other half of the kingdom is under mortgage, which again militates greatly against agricultural progression. If public companies were formed to redeem the mortgages, purchase lands and improve them, good tenants could be readily found, willing to pay a suitable rent. Men of capital would eagerly compete for such farms, seeing that they would be secured by leases and other liberal arrangements. They would be free from political subserviency, and have the sole right of sporting, which men of capital and position highly prize. Another impediment to a development is that farmers take too much land in proportion to their capital, and so do landowners. £10 per acre used to be considered as ample farm capital: under modern requirements of arable farming, even £20 or £30 is not too much. I have £17, and that is not near enough. The live stock on an arable farm should never be less than £6 per acre—£10 would be better. The average farm capital of the United Kingdom is under £5 per acre. Capital alone will not ensure profitable farming: it must be accompanied by business aptitude; in fact, a knowledge of agricultural practice, and a proper carrying of it out.

**GRASS LAND—PERMANENT PASTURE.**—Here is the grand field to which we must look for development and progress. One-half of the kingdom is in permanent pasture. The last Board of Trade returns give 22,156,541 acres in 1867 as against 21,174,787 in 1866, showing an increase of 981,754 in grass land. These returns are exclusive of heath or mountain land. Our grass lands are now in the hands of Nature: they should, and I hope will, pass into the hands of man. We have heard too much lately about laying-down land to grass

and depending on foreign countries for corn. Judging from the latest statistics, that opinion appears to have been acted upon. I protest against this mistaken practice, as most injurious to the country at large. I shall show you by a statement of facts that the grass land of this kingdom is a great national loss and mistake—that it is starving our people, and that to advocate its extension is a cruel error. Not one loaf of bread for man is produced by more than one-half the land of this kingdom. What would have been our fate this year had all the kingdom been in grass? In lieu of a superabundant wheat crop, we should have had a famine. The twenty-two millions of acres of grass lands have, this unusually dry season, been almost unproductive, and caused a heavy loss to the occupiers and to the country at large, while our heavy wheat crop, with its unusual breadth and superior quality, is a blessing and a profit. We must, as a result of the season, have dear meat, at any rate for some time to come. Laying down to grass means starving the people and depriving them of employment. It means stagnation in trade and manufactures, and a throwing out of employment a very large portion of our artisan population. Natural grass lands employ little labour, capital, or machinery, and produces little food for the people. The pastoral day has gone by: it cannot remain in the face of an overwhelming and industrial population demanding food and employment. Grass lands are coveted just because they require little capital and less skill, and therefore landowners find always plenty of tenants for them. Landowners like them because the buildings are few, primitive, and uncouth, repairs small, drainage seldom asked for, residences mean, and suited to uncultivated tenants. There is not much trouble about this sort of landowning or farming. It is in an unaltered state of Nature—no change, no progress, and very little increase of rent as compared with arable land. All this is contrary to the general advance of the country in wealth, intelligence, and population, and totally unworthy of the British people. We must infer from the increase of grass land that there exists an opinion that it does not pay to convert it into corn land. The proofs, however, are all the other way, as I purpose presently to show. In plural districts and suitable soils, especially where irrigated, there may be some excuse found for grass lands, but in our dry cereal districts permanent grass is a mistake—nationally, almost a crime. An experience of 25 years enables me to speak practically on this matter, for out of 170 acres I have only 14 acres in permanent pasture, as a run for my stock; and instead of robbing and starving it, I never allow any animals to feed upon it without giving them cake, corn, &c., as supplemental food. For all that, its produce this dry season is at a minimum of value, while my 73 acres of Wheat yield 6 quarters of corn and 2 tons of straw per acre, the latter available as food for stock; representing together a value of £20 per acre. But let me proceed to show you how little our grass land produces compared with our arable land, and then you will at once perceive how great is the national loss it causes. Our 11,431,440 acres in corn crops produce, on an average, an annual sum of about £83,000,000, besides straw. What do our 22,156,541 acres of permanent pasture produce?—according to my rough or approximate estimate only about £50,000,000, or about 43s. per acre; while our 11,431,440 acres in corn produce £28 per acre, besides about £3 worth of straw. We can thus understand why the gross produce of the kingdom is only £3 15s. per acre, and its capital between £1 and £5 per acre; and we can imagine how wretchedly robbed

and starved must be the bulk of the grass land of the kingdom. Grass lands, instead of being well fed with manure, are too often used as milch cows for the arable land. But poor, wretched, exhausted pastures not only keep everyone at low water-mark, but the labourer on such lands should be of the Malthusian or Millite school, and not marry; for how can an increasing population find food or employment on a never-changing and non-improving soil and crop? It is this unfortunate fixity and stagnation that beget a bad name for our western and grass land districts, and furnish Canon Girdlestone and others with the means to attack agriculture. Grass land, looked at from every side, presents weak points, and is no longer consonant with our tripled population and the progressive spirit of the age. To show how little labour is employed on permanent pasture, a friend, who was steward over a large grass estate in Northamptonshire, assured me that the shepherding was only 1s. 6d. per acre, the attendance on cattle proportionate; one-third of the grass being mowed for hay would require more labour, but the average would probably be under 5s. per acre; on arable farms it would be from 20s. to 40s. per acre; on my farm it is 50s. per acre. In confirmation of my censure of grass lands let me refer you to the late Mr. John Morton's report on the condition of the Whiffeld Example Farm before and after its improvement (see "Morton on Soils," p. 248): "*Before Improvement*.—Total acreage, 232, of which 164 were pasture, 68 arable. Tenant's capital, £726, or £3 per acre. Annual produce £463, or £2 per acre. Labour employed, 8s. 7d. per acre, rent and taxes, 22s. per acre. *After Breaking-up*.—Landlord's improvements on the farm by drainage, new roads, new buildings, &c., £15 per acre, or £3,500. Increased rent, £175 per annum; tenant's capital, £16 per acre; increased produce, £2,904." Mr. Morton estimated the value of the whole produce of the farm in its improved condition at four times that of the produce of the farm for the last 21 years. Mr. Morton made these remarks: "Houses and buildings very limited and in a very bad state of repair. Forest-like appearance presented by pasture land. Immense number of trees crowded together in the hedgerows, injuring the pasture, destroying the fences, preventing the drainage, and shading the Grass, thus making it unpalatable." These remarks would apply now to immense tracts of land, undrained and unimproved. At vol. ix., p. 54, of the Royal Agricultural Society's Journal, the late Mr. Woodward, a wealthy and successful farmer, whom I knew, gives an account of the advantages he derived from breaking up poor worn-out pasture land. Mr. Woodward, in 1844, pared, dug, levelled, and drained 20 acres, at a cost of £7 10s. per acre. The first year it produced 42 bushels of Wheat per acre, sold for 14 gs.; the second year 50 bushels of wheat per acre, the third year 48 bushels per acre—all without manure; the fourth year, with 2½ cwt. of guano per acre, it promised to be a large crop. This poor grass land was only worth 25s. per acre before improvement. By this operation Mr. Woodward was enabled, besides other advantages, to give employment to 40 labourers for nearly three months in the dead of winter. At that period a great many labourers were out of employ. This was also the case hereabout when I carried out my drainage, digging, and other improvements, wages being then only 8s. per week, with a considerable over-supply. I dug with forks much of my land at 2d. per rod, or £1 6s. 8d. per acre. It would cost 50 per cent. more now. In my own case, after draining a piece of wretched pasture, I pared and burned it, and for the

last 24 years it has yielded abundant crops of wheat, man golds, beans, clover, &c. I could greatly multiply these instances of the individual and national advantages of passing from a pastoral to a mixed arable husbandry; but it is unnecessary, for it is so obvious, that none can doubt it who read Mr. John C. Morton's elaborate prize essay "On Increasing our Supplies of Animal Food, vol. x., p. 341, Royal Agricultural Society's Journal.

**CAPITAL AND DRAINAGE.**—Are we, as a nation, short of the capital required for agricultural development? I can safely answer, Decidedly not. It is only the inclination to so apply it that is wanting. Our annual increase of capital or wealth is estimated at £50,000,000. Cannot a large portion of this be spared for profitable investment in the increased production of our food? If not, what becomes of it? I think I can tell you. Almost daily, as I read the money article of the *Times*, I see announcements of projected associated companies for various undertakings both at home and abroad, and millions are at once cheerfully poured into the treasury of any foreign potentate who happens to be "short of tin," but not a word do we hear about poor British agriculture. Money can be readily found for the Mont Cenis Railway, Berlin Waterworks, and a hundred other foreign schemes; but poor primitive, pastoral agriculture, with its bad roads, ill-shaped fields, wretched buildings, undrained clays and swamps, and half-manured lands, is unseen and unknown on the London Stock Exchange, or, as the late Baron Rothschild called it, the financial heart of the world. Run your eye down the very long list of associated undertakings in any day's *Times*, and you cannot fail to be struck with their number and variety, but not one line about that most important of all—the productions of food for the British people. It is true we have had recently formed two or three successful land drainage and land improvement companies; but at present they are little known or availed of, although so valuable and profitable. Their names and shares are never quoted on the Stock Exchange list, and I presume that their directors do not see any necessity for placing them on that list; but that I consider to be a great mistake, for if you want money, the City of London is the place to supply it, as all Chancellors of the Exchequer well know. I extract the following from a recent agricultural paper: "*Lands Improvement Company*.—The 20th half-yearly general meeting of the shareholders in this company was held on Saturday, in London, Mr. W. Wynn, M.P., in the chair. The report of the directors stated that the new business for the half-year amounted to £116,921, the outlay by landowners to £85,901, the commission and interest earned to £4,501, and that, after paying and providing for all current expenses, there remained a net profit for the half-year of £1,689, which, with £120 carried forward from the half-year ending 31st December, 1867, made a total available balance of £1,818. The reserve fund on the interest account was £1,110, the general reserve fund £4,471, and the preliminary expense account amounts to £4,438. The directors recommend that a dividend at the rate of 6 per cent. per annum should be paid for the past half-year on the paid-up capital of the company, free of income-tax, and payable forthwith; and that a bonus at the rate of 2 per cent. per annum shall also at the same time be paid for the past half-year on the paid-up capital of the company, free of income-tax, and payable forthwith. The report was adopted." One would naturally conclude that with such a perfectly safe investment, yielding 8 per cent. per annum, there would be

a rush of capital to the extent of millions, seeing that the 500 millions sterling in railways barely pay 4 per cent., with sadly fluctuating and depressed prices—that consols only give  $3\frac{1}{2}$ , and that many millions have been lost by the failures of banks and other public companies, so that the public are earnestly looking for safe investments. Witness, that money on the Stock Exchange is only worth 1 to  $1\frac{1}{2}$  per cent. per annum, and on first-class bills 2 per cent. per annum. But if the public are unaware of the existence of such companies, how can they invest in them? In these agricultural companies no losses can occur, for the money advanced is secured by a first charge upon the land, and yet the investments and transactions are puny as compared with the requirements. And as shown by the following extract from Mr. James Sanderson's able pamphlet on agricultural progress: "Drainage generally yields from 12 to 20 per cent. In a few instances I have known the total cost repaid by the first crop. As a rule, drainage executed by farmers is unsuccessful, and in nine cases out of ten, where land owners contribute pipes and tenants labour, both labour and material are thrown away. Owners and occupiers, indeed, reap equally satisfactory returns from drainage, the former getting their estates permanently improved without expending one shilling of their own, the latter, by paying 7 per cent. interest per annum, realising in lieu 15 per cent. value. Since the Government loan, which gave the first impulse to drainage, was taken up, financial companies have greatly facilitated the execution of drainage works. During the last 10 years the Land Improvement Company has advanced loans on drainage in England to about £1,500,000. Estimating that the half of that sum has been advanced by all other financial companies and landlords together, the extent of land annually drained in England, computing the cost as £6 per acre, is only 37,500 acres. Progressing, therefore, only at the present rate it will take 133 years to complete the drainage of wet land. Adding to the undrained area the extensive breadth of undrained land in Scotland and Ireland the large reclaimable mountain area, the wide tract of convertible forest and moorland, and the very large area reclaimable from the sea, and from the straightening and embanking of rivers, we see that the undeveloped food resources of Great Britain are still vast." I find practically that all my drains laid 25 years ago are still perfect. In fact deep pipe drainage appears to me to be a permanent operation, provided the proper outlets are kept free, and that roots of trees are not permitted to enter spring drains. Mr. Bailey Denton calculates that 20 millions of our acres still require draining, at a cost of £100,000,000. The importance of keeping heavy land dry is well illustrated this remarkable season, when we have abundant wheat crops on farms that in a wet season would, for want of drainage, have grown wretched crops. The floodless winter of 1867-68, and this dry and warm spring and summer, rendered drains less necessary, for there was no excess of moisture to be carried from the land by drains. The great and deep cracks or fissures effected an upward drainage by evaporation. In a letter I addressed to the *Times* in 1861 (see page 464 of my book) I said: "There are many millions of acres of exhausted grasslands and poor stiff clays which now bind the tenants in poverty and discontent that would be rendered profitable by an investment of £20 to £36 per acre in the following improvements:—

Drainage ... ..	£7	0	0
Subsoiling or deepened cultivation ... ..	2	0	0

Removal of hedgerows, trees, and improved roads ... ..	£2	0	0
Covered yards and good farm buildings ... ..	7	0	0
Suitable residence for a tenant with capital ... ..	5	0	0
Steam machinery for various purposes ... ..	2	10	0
Burnt clay, chalk, or lime ... ..	5	0	0
Guano, bones, or other manures ... ..	3	0	0
Sewage irrigation where practicable ... ..	3	0	0

So here is a total of landlord's and tenant's improvements, which conjointly would certainly result in individual and national profit. I am speaking practically in this matter, and I know that it would be a happy circumstance for the generality of clay-land farmers to have their present rents doubled, or even tripled, provided that the increased rental represented a fair interest on the sum expended on landlord's improvements." My balance-sheets confirm the foregoing opinion.

STEAM-POWER is now so well known to be profitable that I need hardly advert to it. Besides cultivation, it should be arable farms work millstones, pumps, chaff-cutters, calc-breakers, root-pulpers, thrashing and dressing machines. Much extension is required in this matter of steam. It is only as yet in its infancy. I have worked my engine for twenty years. Before fixed steam-engines can become general, special agreements with the landowner, as to removal or transfer, will be required. No arable farm of 150 acres should be without a steam-engine.

TOWN SEWAGE.—It does astonish me that landowners do not associate themselves by Act of Parliament, for the purpose of obtaining sewage, just as they do in the Fen districts for the removal of surplus or injurious water. The system has worked well for centuries; why should it not in sewage. It is of no use to carry either gas, sewage, or water to those who do not care to receive or pay for it, and no company can succeed unless in conjunction with the landowners under Acts of Parliament, the same as railways, canals, and other great undertakings. Take the case of the great Metropolitan sewer, with the mountain of food and lake of liquids consumed by  $3\frac{1}{2}$  millions of people (agriculturally, I would compare them, weight for weight, with an equal number of sheep). Here a company has a grant of 50 years of the North London sewer (a river of sewage), and yet agriculture shows no sign of demand for that precious stream of the life-blood of the nation; so the company languishes. Something compulsory must soon be done, or the navigation of the Thames will be imperilled. The 150 landowners who hold one-half of England, and the 12 who own half Scotland, have the matter to a great extent in their own hands, for they are mostly legislators. I calculate that at least six millions of acres are exhausted annually in producing food for the population and horses of the metropolis. Mr. Morton has just informed us that some of the sewaged land of Barking, that last year produced 40 tons of rye-grass per acre (equal to 16 tons of hay), has this dry year yielded 43 tons of mangel per acre. (Is not this sufficient evidence of profit? Many of our great estates will require a remodelling on a scale of arrangement suited to the modern requirements of steam-cultivators, sewage-irrigation, &c. It would pay well.

FARMING IS AS CERTAIN A SOURCE OF PROFIT AS ANY OTHER BUSINESS, ON AN AVERAGE OF YEARS.—On this point I speak practically. The return is slow but sure. I speak, of course, of well-managed farms—drained, free from fences and timber, and with suitable buildings—where there is capital and judgment. A clear 10 per cent. on farm capital and a house rent-free may safely be taken as a minimum average.

age. If farming was generally unprofitable, it would be given up; or rents would be reduced to a minimum.

**LIVZ STOCK.**—A very important source of agricultural development is the better management of cattle. I speak practically on this matter, for I have annually quite 40 bullocks and 200 sheep, sometimes many more, and we have very rarely any loss of consequence; but before this development can take place fully, there must be a reform in our homesteads. The open farmyard must be abolished, and replaced by enclosed and covered sheds, well ventilated in the roof, and with paved floors. These operations are certainly profitable. The comminution, intervarying, and intermixing the food by means of steam-power is an essential, also free access to good water, and to rock-salt in the mangers. Exposure and mismanagement of cattle inflict a loss of several millions annually on the British farmer. The turning out of cattle must, as a rule, be given up, and will be gradually done away with as we break up our pastures. These are matters that I have long since tested by £ s. d. If an account could be taken of farm-horses dying as a result of drinking cold water when they are heated, and getting gripes and inflammation from tough unprepared tares and clover, the total annual loss, added to that of cattle, would be found to be something astounding. Let us remember that 1s. per acre is over £2,000,000 per annum. Taking the whole country, very much more than this is lost annually to the farmer by disease and death in stock.

#### LET US IMPORT CATTLE FOOD IN LIEU OF MAN'S FOOD.—

In the former case the results go to enrich our soil, in the latter they are wasted in our rivers. By a large consumption of foreign cattle food we are enabled to procure our manure at the cheapest rate, and most effective in quality; and we can then produce more corn and meat, at a diminished cost. If our grass lands are to be converted into arable, such a course becomes absolutely necessary. My own experience teaches me that this consumption of much foreign food is the certain key to profit, by forcing maximum crops. By this practice we feed the people and the land at the same time. Our annual produce of wheat does not increase, because the wheat after consumption does not return to the soil, but goes down to the sewers; and but for the enormous sum paid by farmers for guano, bones, and artificial manures, the land of England would be still further impoverished. If we could see in one great heap the food supply of London for one year, it would be found to be a mountain, and its drink a great lake. The fact that our growth of wheat remains stationary, or rather retrogrades, proves, what we already know, that the land of England does not receive more than one-third its proper supply of manure, or in other words, food-producing power.

**SUMMARY AND CONCLUSION.**—I think that you will agree with me that I have clearly proved by this paper, and by my practical experience of 25 years at Tiptree, that by an increased investment of capital, both on the part of landlord and tenant, the produce of the United Kingdom might be much more than doubled—that our undeveloped power is immense, and that its being called into action would greatly benefit the country at large. It would be irrational to expect that such a change can take place suddenly—that both landowners and tenants would be content to diminish their holdings to the level of the required capital, but it is well to discuss such matters in public, and to prepare our minds for a great and profitable change and progress. Where there is a will a way may be found, and, I trust, will be found good for agriculture, and for the country at large. In conclusion, I fully en-

dorse the opinion expressed by that eminent Frenchman, M. Lavergne, in p. 227 of his "Rural Economy of England:"—"An English farmer is capable of any effort when he feels confident that he is under a good landlord, who does not tie him down too strictly, and who will help him at a pinch."

Mr. T. W. MORRIS (Bedgrove, Aylesbury) said he should like to ask Mr. Mechi what sort of wheat he grew. He had told them that he grew 48 bushels of wheat per acre. That was no very uncommon crop; it had been exceeded in many instances.

Mr. MECCHI replied, that he grew principally club-headed rough-chaff white wheat.

Mr. MORRIS about a fortnight ago was visited by an eminent farmer of Surrey (Mr. Thos. Drewills, Pucards Farm, Guildford), and showed him a sample of "rivets" wheat—a worse, but prolific wheat. This year I grew 80 bushels per acre of it. He said, this is the sort Mr. Mechi grows. I said, then that accounts for the large crops we sometimes hear of being grown by Mr. Mechi.

Mr. MECCHI observed, that of 73 acres of wheat which he grew, only 20 acres were revet, that being grown after white wheat.

Mr. L. A. COUSSEMAKER (Westwood, Guildford) said he might appear a bold man for rising thus early, to answer some of the remarks of Mr. Mechi. He always looked forward to Mr. Mechi's papers with considerable interest, believing that, on the whole, they did a great deal of good. On many points he did not agree with that gentleman, but he directed their attention to, and caused the ventilation of subjects, which might otherwise have lain dormant. What had particularly struck him that evening was, that while insisting on the advantages of arable land, Mr. Mechi depreciated those of grass land. He agreed with him, that a great deal of the poor grass land of this country might be profitably broken up, and turned into arable (Hear, hear); but if a man possessed grass land of fair quality he should consider him almost mad if he were to break it up for tillage (Hear, hear). Grass land had its value as well as arable. They must not consider one year alone. The present year had been a remarkably dry one, and very favourable for the growth of the wheat crop, with the exception of spring corn, and it had been very unfavourable, generally speaking, for grass land; but it was an exceptional year. Did any of them remember a year with such a completely tropical summer? (Hear, hear). Despite all that Mr. Mechi had said, he believed that on the average, grass land was more profitable than arable. He had himself as nearly as possible half grass and half arable, and therefore he was quite unprejudiced on the subject. He was not in a rich grazing county, but on the contrary, in a poor one; but nevertheless he could declare that the half of his farm, which was in grass paid him better than the half which was in arable. On many of the valuable farms of the midland districts—Warwickshire, Leicestershire, and other counties, a man must be perfectly mad to break up the grass land to grow crops; but on poor land the case was altogether different. To suppose that because a man farmed only grass land he had nothing to do was a very great mistake (Hear, hear). The proper stocking and management of such land required as much skill, capital, and intelligence as was needed on any arable farm (Hear, hear).

Mr. T. CONGREVE (Peter Hall, Brinklow, Coventry) said he differed on one essential point from Mr. Mechi. That gentleman had talked about grass land. He (Mr. Congreve) maintained without fear of contradiction that he knew nothing about t

grass land (laughter); and when a man talked of what he knew nothing about he was very apt to make rash assertions. He had been on Mr. Mechi's farm and would affirm that what he called grass land was not grass land at all (laughter). It was, in fact, absurd to call any of the land at Tiptree grass land. Mr. Mechi made assertion which astonished him. He had always understood from observation and experience that grass land required more capital to work it than arable land. £10 an acre for arable land was not thought a very bad sum, but that amount would have been of very little use in stocking a grass farm during the last four or five years. He maintained that Mr. Mechi never in his life had a foot of land that was worthy of being called grass land. He might have gone through grass land counties and seen grass land there; but if he went into Leicestershire he would find some difficulty in inducing Mr. Paget and his tenants to break up their grass lands (Hear, hear). He would ask Mr. Mechi where was the roast beef of old England to come from at this time of year.

MR. MECCHI remarked that there was not much grass this year.

MR. CONGREVE: No, but this was an exceptional year (Hear, hear). Where in ordinary years was English beef to come from? They could not produce food, that is to say, roots and mangold, in July, August, and September. If they kept their stock under cover on any expensive food in those months they could do no good, for the excessive heat would prevent production of meat, and England must depend at that period of the year on her grass lands. He was quite sure he expressed the feeling of every Midland counties' grass farmer when he said that this year had been an unprofitable one, and that farmers in that part of the country had suffered severe losses; but he repeated that this year was quite exceptional, and he would add, that if they did away with grass lands they would find themselves in a very bad box as respected the roast beef and mutton of this country. Mr. Mechi had talked about the importation of foreign meat. He (Mr. Congreve) admitted that foreign beef had improved in his time, but it was not yet up to the mark. It was, indeed, good food for the million; but there were a great many persons who wanted something better, and this must come from England. Mr. Mechi had drawn his conclusions from erroneous data; he knew nothing about grass land (laughter). He should like him to occupy a grass farm; he would then find that with the aid of all the money, which, on his own showing he had got out of Tiptree (laughter), with all his capital and all his judgment and experience, grass-land farming was not as easy a matter as he appeared to suppose.

MR. JOHN THOMAS (Bletsoe, Bedfordshire) said the discussion that evening ought to have reference to the development of British agriculture. He quite agreed with Mr. Mechi that one of the first requisites for its development was long leases, or fixity of tenure as it was termed in Scotland, under which a farmer might obtain compensation for improvements. That would be a benefit both to the landlord, tenant, and to the public. As regarded grass land, he thought all land which was not worth 30s. an acre to rent ought to be turned upside down; in other words, converted into arable. If it were broken up it would employ more horses, more labour, more machinery; thus the community at large would be benefited, whereas poor grass land afforded benefit neither to the landlord, the tenant, nor the public generally. He could name hundreds and thousands of acres of grass land in Bedfordshire, the conversion of which

into arable would be beneficial to all parties. There were some counties which were better adapted for grass, and others which were better adapted for tillage. He had heard Mr. Battams, a good practical farmer, who had now retired, remark that his son took a farm in Devonshire which would feed a bullock per acre, but would not grow wheat. To plough such land as that would be madness; but in the dry counties of Norfolk, Bedfordshire, and Essex, there was a great deal of land which it would be beneficial to all parties concerned to convert into tillage. He felt very much obliged to Mr. Mechi for the remarks which he had made. There was a great deal in it that was well worth attention; for example, what was said with respect to hedge-row timber and crooked hedges. There was great room for improvement, and much might be done to promote the development of agriculture.

MR. J. A. NOCKOLDS (Bishops Stortford), said he would assume that Mr. Mechi was a man in advance of his age, and one who must look to posterity properly to appreciate his efforts (laughter). In that respect he resembled Galileo; he was subject to disparagement from rough cynics and brawling clodhoppers who were continually calling out for what had been given to them, but which, now they had got it, they could make nothing of. What he (Mr. Nickolds) most admired in Mr. Mechi was the fertility of his imagination and the discursiveness of his fancy. He lived in a Dreamland of his own. He saw visions of gigantic wheat-ears growing half a yard apart, and each bearing a quarter of a peck of corn, oats and barley being in proportion (laughter); he saw in vision oxen vast as Behemoth, swine gross as hippopotami, fowls tall as cassowaries and fat as the extinct dodo (laughter). Perhaps at his residence at Tiptree, he realised what Tom Moore sang respecting the land of Cockayne—

"Where the birds fly about with a true pheasant taint,  
And the geese are all born with the liver complaint."

(laughter). At the same time they must all feel that this poetry and fertility of imagination led Mr. Mechi to advance the interests of agriculture to the utmost of his power, and to strain every nerve to promote what he believed would be beneficial both to farmers and to the community at large (Hear, hear). Admitting that he must advert for a moment to Mr. Mechi's poetic ideas, it seemed somewhat imaginative to say that they ought to feed the population of the kingdom from the acreage of the kingdom, especially when it was taken into account that a very considerable number of these acres would be absorbed in buildings in the neighbourhood of large manufacturing towns and of the metropolis. There were many things which might alter the area with which Mr. Mechi's figures dealt. Then, again, what imagination lurked under that word "probably." When they were dealing with statistics there should be no such word as that. Mr. Mechi's comparisons were in fact essentially false. If a man took a piece of land for building, he could go up as high as he pleased, or at all events as high as the inspector would allow; but there was a limit to the extent to which you could plant and grow wheat, and therefore there was no analogy between the two cases. Then, again, Mr. Mechi, in another flight of imagination, asked what would be the state of this kingdom if there had not been a superabundant wheat crop this year? Of course no one could tell, unless it were with the aid of the future of John Bull which Mr. Mechi drew in his paper. He (Mr. Nickolds) looked on Mr. Mechi as the Poet of Agriculture, and expected that every year they would have from Mr. Mechi's pen a volume of blank verse somewhat in the style of Virgil's *Georgics*,

and that he would thus continue to foreshadow what would be a benefit to agriculture and to the kingdom at large.

Mr. H. TRETHEWY (Silsoe, Ampthill) said he was very sorry that Mr. Mechi had not taken the hint which was thrown out by the Chairman—namely, that he should be kind enough to point out to them the shoals which they had to avoid. It might have been supposed that with his varied experience he would be enabled to give them some valuable information on that subject, and to show them whether all his attempts had been successes, or whether some of them had been failures. As it was, he had left them totally in the dark. Two or three of the gentlemen who had spoken, had so thoroughly expressed his own opinions as to the relative values of grass and arable land, that they had in fact left him very little to say. While, however, he entirely concurred in their sentiments, he must be permitted to observe that one essential element appeared to have been entirely overlooked—namely, climate (Hear, hear). When they talked about converting grass land into arable, they should bear in mind that they had climate to contend with as well as soil (Hear, hear). A large portion of the land of this country—indeed, he might say nearly the whole of the western part of England, including portions of Devonshire, Cornwall, Somersetshire, Herefordshire, Shropshire, Lancashire, Cheshire, West Riding of Yorkshire, and other counties—was unfit for arable purposes, and at the same time excellently adapted for the growth and fattening of stock. He knew many thousands of acres in that part of the country which were profitably occupied at a very high rate—twice as much as Mr. Mechi would estimate even Tiptree at, and the land to which he was now alluding would be totally useless if it were broken up for the cultivation of cereal crops. The soil was good, but the climate had to be taken into account, and the climate, which was inimical to the growth of corn on account of the quantity of moisture, was highly favourable to the growth of grass and the feeding of stock.

Mr. MECCHI: You don't mean for the growth but for the ripening.

Mr. H. TRETHEWY said it came to the same thing. If the crop did not ripen it was of no use (Hear, hear). Well then, again, as regarded hedge rows, these were valuable on such land as he referred to. One great thing required in such climates was shelter; and although shelter was not so much required in some districts as in others, he was not at all inclined to go the length of those who were for doing away with hedge rows even in the southern counties. Hedge rows were in many cases exceedingly valuable on account of the shelter they afforded. He was quite unable to follow Mr. Mechi through all his statistics, and he dare say others were in the same position; but he must say that some of the statements he made seemed rather startling. The last speaker alluded very forcibly to the want of analogy between land in the city and land in the country. It was quite true that many persons in London found it answer their purpose to give a very high price for land in the city on a building lease for ninety-nine years. They enjoyed certain privileges which it no doubt answered the purpose of the landlord to concede, inasmuch as he got perhaps a heavy ground rent; but the system was not applicable to land in the country, or even in other large towns. He knew a great deal of land which was offered on building leases for ninety-nine years, and which was not taken because those to whom it was offered preferred a freehold. With regard to the laying-down of arable land to grass, he took it that that was very rarely done except under very peculiar cir-

cumstances (Hear, hear). He held that arable land of fair quality was much better occupied as arable land, especially in dry climates, and that element must always be taken into consideration. He agreed with Mr. Thomas that arable land which was worth only from twenty-five to thirty shillings an acre had better, as a rule, be turned into arable land if in an arable district. But even that rule must be held with a certain degree of restriction, because where there was a great deal of arable land and scarcely any grass land, although grass land was very inferior, still it would be found very useful (Hear, hear). He must say he was very much surprised at the immense return obtained at Tiptree, which Mr. Mechi modestly put at five times the average of the kingdom (laughter). Whether that was the case or not, he was not in a position to say; but he had certainly received the assertion with some little doubt and hesitation (Hear, hear). He was glad, however, that his friend was so pleased with his produce, and that he had found farming such a very profitable occupation (laughter).

Mr. W. HARPER (Bury, Lancashire) wished to observe that the preceding speaker was mistaken in supposing that building leases were confined to London. In Lancashire many houses, mansions, and some factories which had cost £100,000 were built on a 99 years' lease. Liverpool was built on a 60 years' lease. Huddersfield was built on a lease which was not so good; in fact, the owners were almost tenants at will. Many manufacturers had laid out vast sums of money on a lease because they hoped to make a considerable sum of money within the time, and could not get better terms.

Mr. H. TRETHEWY admitted that he had made a mistake; it was in consequence of his having looked nearer home while he was speaking.

Mr. HARPER said having lived for a long period in a manufacturing district, and during a portion of the time been connected with agriculture he could speak feelingly as to the absolute impossibility and the folly of farming in a district without having regard to its climate. Whilst there were farms in Lancashire that would produce good milk and butter, and admit of the rearing of good stock, on the other hand in that and the neighbouring county, Cheshire, it would be madness to break up their old grass in order to grow wheat. A friend in Norfolk had told him that this year his crop amounted to 8 or 9 quarters of wheat to the acre. Perhaps if they had sown wheat in his district this year they would have had a good crop, but in nine years out of ten would have had no wheat, or at all events it would not have been got in good condition owing to the humidity of the climate. He had seen oats out in Lancashire in the latter part of November.

Mr. W. VIVIAN (Roehampton) said he must take the liberty to differ from Mr. Trethewy respecting the relative position of grazing and arable land in Cornwall. Mr. Trethewy contrasted Cornwall with some other counties. He left Cornwall very early, otherwise he must have known that that county was always considered, as it was still, rather a wheat-growing than a grazing county. He was old enough to remember a time when in many parts of Cornwall it was a rather difficult matter to graze a bullock. Farmers worked a bullock till it was five or six years old, and sold it to the grazier in a lean state, and that was found to pay better than fattening it. He had no statistics with him, but believed that of late years the farmers in Cornwall had broken up land and grown wheat and barley instead of grazing. He had seen many acres broken up in dif-

ferent places, but never in his experience saw any extra land laid down for grass.

Mr. TRETHEWY wished to explain. It was true that he left Cornwall some years ago, but he was in the habit of returning to it, and he was quite sure that what he had said was correct. The gentleman who spoke last alluded, no doubt, more particularly to Probus and Grampond. His (Mr. Trethewy's) father was a large occupier in the parish of Probus, and to his certain knowledge had laid down a considerable portion of his land to grass within the last few years. The land which he had alluded to as being converted into arable was simply such land as was described by Mr. Thomas as not worth keeping in grass. He repeated that the land in the counties of Cornwall and Devonshire, and in the west of England generally, was better adapted for the growth of cattle—he did not say for the feeding of cattle—than it was for the growth of corn. Cattle were reared in Cornwall and taken into Somersetshire to be fattened. He was, therefore, quite correct in his assertion.

Mr. J. DUMBRELL (Ditchling, Hurstpierpoint) said it appeared to him unfortunate that an observation of Mr. Mechi respecting the breaking up of poor grass land had had the effect of turning the discussion into a channel which he never intended (Hear, hear). If he understood Mr. Mechi aright, he took a much broader view than the breaking up of grass land or the profit of Tiptree Hall (Hear, hear), or a question whether or not it was wise to leave wide hedgerows in large fields to shelter cattle. If he understood the paper aright, the question raised in it was, whether the progress of British agriculture was sufficiently developed, and the reason which Mr. Mechi had brought before them that evening why it was not sufficiently developed was that there was not sufficient capital expended upon it. Having heard several of Mr. Mechi's papers read, he must say that he thought there was a great deal to be learnt from them; in this opinion that gentleman had rendered great service to British agriculture. A gentleman who had left the room, and who came there with a piece of poetry in his pocket, had told them that Mr. Mechi would be honoured by posterity. He ought to be; he ought also to be honoured by the present generation, and he was so (Hear, hear). Let him not be told that the land had sufficient capital spent upon it. He would not allude to persons who had run up houses in St. Paul's Churchyard having paid fabulous prices for the land; he appealed to gentlemen in that room how many acres they had seen which were infamously farmed for want of capital. In the case of the county of Sussex, it seemed monstrous to talk of the investment of £10 per acre on the land; in a great many instances not £3 per acre was invested. He had found farmers who had no capital at all, and who, having taken a few acres without any power of cultivating them properly, had declared farming to be an unprofitable employment (Hear, hear). The great question before them was, as he understood, were the resources of the land fully developed? Would anybody say that they were? (Hear, hear). Mr. Mechi said that the cause of that was, that there was not sufficient capital employed. How was the requisite capital to be obtained? There was abundance of capital lying dormant in the City of London; and persons were continually bringing out some scheme for the purchase of Italian Tobacco Bonds, or something of that kind, the quotations for which were to be seen at length in the *Times*. Could anything, then, be more rational than the idea thrown out by Mr. Mechi, that some of the British capital which

was employed on such schemes might be profitably invested in the land of our own country (Hear, hear).

Mr. H. CHEFFINS (Easton Manor, Dunmow) hoped that some one would explain what seemed to him a paradox in the views of Mr. Mechi and Mr. Dumbrell. They spoke with approbation of persons who took a quantity of land and immediately borrowed money to work it, and yet they talked also of the desirableness of coming to the City of London for capital for farming purposes. Mr. Mechi first advocated fixity of tenure as an inducement to men of large capital to take farms and directly after said agriculturists must borrow money. That was an inconsistency which required explanation.

Mr. J. BRADSHAW (Knowle, Guildford) said he always listened with attention and interest to any paper from Mr. Mechi, but he did not always agree with him. There were only two points in the paper read that evening, which he should at all comment upon. As regarded the investment of capital in land, he thought that no wise man, no man who knew anything about his business, would invest unless he considered that he could do so prudently, and with a fair prospect of return. The land of this country varied so materially as regarded quality and climate that an outlay which was applicable to one description of soil or locality was totally inapplicable to another (Hear, hear). Only a month ago he was visited by a gentleman belonging to the adjoining county of Sussex. That gentleman was the owner of 1,600 acres of land, and he said to him, "Can you recommend me to treat those 1,600 acres of land in the same way as you have treated yours?" He replied, "Decidedly not, it would be a most ruinous investment if you were to do so; you would have to drain, and to erect expensive modern buildings, and the land is not of such a character as to admit of that; it would be an extravagant outlay." He (Mr. Bradshaw) had invested a considerable amount in his land, and he would not recommend any other landlord to go and do likewise, that was, as regarded buildings (Hear, hear). If the temptations to invest in land were such as Mr. Mechi had stated that evening, there would be no lack of capital to be applied to the cultivation of the soil; for the advantages which had been spoken of were superior to those which had attended any branch of manufactures in this country for some time past. He had hoped that the time was past for such remarks as had been made that evening, with regard to the relative position of landlord and tenant. He considered that the tenant who was possessed of sufficient intelligence and capital could make his own bargain as regarded buildings, the drainage of the land, and game. Landlord and tenant should be left free. The tendency of things at the present time was, he believed, to leave the tenant every advantage which he paid for, and more he ought not to have.

The CHAIRMAN, in closing the discussion, said: Gentlemen, the subject which we have been discussing is one which must be more or less speculative and prophetic. As practical farmers we like to deal with something that has been done rather than with what remains undone (Hear, hear). We naturally ask ourselves why British agriculture is not more developed in the present day. Now I beg leave to offer my opinion on that point in a very free and blunt manner. I say it is because *it does not pay* (Hear, hear, and cheers). I consider that in the agricultural dictionary the word "unprofitable" is exactly the same as the word "impossible." In agriculture if a thing be unprofitable it must in the end be impossible. What is the reason that more grass land is not broken up into tillage? It is that our expenses of arable land are so great and



so continually increasing that although there may be a much greater return from arable than from grass land, yet the profits are smaller; and I would ask whether it be not the business of the British farmer rather to consider his own profits than the great duty which is said to be incumbent upon him of feeding this great nation? (Hear, hear, and laughter). Take, for instance, the case of wheat. No one can suppose that the Scotch farmers do not look after their interests sharply enough. In the last twenty years they have decreased their acreage of wheat by more than one-half. Why? Simply, because they have found that wheat does not pay—that there are other countries which are better adapted than their own for the production of wheat, and which does in fact drive them out of the market. Therefore, with all due deference to Mr. Mechi, I must say that the question comes after all to this—whether farming pays? I am very glad to hear that Tiptree is so flourishing. I remember that the balance-sheet which was so pluckily published some years ago told a very different tale (laughter); but although, according to Mr. Mechi, farming in Essex yields a return of 18 per cent., I can assure him that I have never been able to make 10 per cent. in two consecutive years (Hear, hear). If Mr. Mechi, or the gentlemen who hold the Barking sewerage farm, or the Corporation of Croydon can convince the public in general that the use of sewage will pay there will no doubt be plenty of persons ready to embark their money in such agricultural enterprises; but when costly experiments have to be tried it is not for the British farmer to find the requisite capital (Hear, hear). I am very glad to hear that some of the improvements made at Tiptree have proved of such an enduring description. If under-draining with inch pipes has lasted for twenty-years, why should they not endure to the end of time? We are told that £36 per acre must be invested in the land for the proper development of agriculture. Why, £36 per acre is, I believe, £11 more than the fee simple value which Mr. Mechi has put on the land. If he can persuade anyone that that would be a profitable investment, let him do so in this great city, where money is continually seeking profitable employment. If farming yielded a good interest, plenty of money would soon flow into it (Hear, hear).

Mr. MECCHI then replied: After expressing his gratitude for the kind reception, for the kind feelings towards him which had been expressed, he observed that he had not expected to find unanimity on such a question—on the contrary he knew that he was likely to find himself in a hornet's nest, especially when speaking as he had done of grass lands. He would, however, ask how was it that twenty-two millions of acres produced only 42s. an acre? Was that a comforting thing for the British people to reflect upon?

Mr. T. CONGREVE: We do not believe the statement.

Mr. MECCHI continued: Leaving that point, he wished to observe that he had thought that he had carefully guarded himself against being supposed to recommend everyone to grow wheat, irrespective of climate; but he repeated, and he was glad to have been confirmed in his opinion by his friend, Mr. Dumbrell, a very competent judge, that the land of this country was not half farmed, that not half capital enough, or skill enough was applied by tenants to the cultivation of the soil. If they could return to the world a hundred years hence, and he almost wished they might do so in order to see how differently matters were progressing from what many had expected, they would find that agriculture had undergone as great changes in the next hundred years as it had in the last.

Mr. J. THOMAS moved, and Mr. LEEDS seconded a vote of thanks to Mr. Mechi for his paper.

Sir JAMES DUKE would be very much pleased if some of his friend Mr. Mechi's views could be carried out, being persuaded that the prosperity of agriculture depended on the increase of the capital employed in it.

The motion was then put and carried.

On the motion of Mr. E. LITTLE, thanks were then accorded to the hon. gentleman in the chair, and this terminated the proceedings.

At the Meeting of the Committee on this day Mr. R. J. Newton, of Campsfield, Oxon, was elected Chairman of the Club for 1869.

## ROOT CROPS AND MODES OF STORING THEM.

POTATOES.—Seldom has there been a year in which more anxiety has been felt by growers as to the ultimate success of this crop, as has everywhere been the case during the present season. Notwithstanding the gravest doubts during almost the entire period of its growth as to its future well doing, it has yet in a great measure agreeably disappointed many growers whose hopes were by no means sanguine, and in nearly every part of the country the potato crop is well spoken of. Although the seed time was highly favourable, and the season all that could be wished for, say up to the time of earthing, the long continued drought that set in immediately after this operation, retarded the formation of tubers, and prevented their attaining the usual size. The growth of a second crop of tubers, and even a third, after the soil became moistened, was supposed by most people to have an injurious effect upon the quality of the potatoes, and to unfit them for table use, their money value being correspondingly lessened; yet after all these fears they have attained a good size, are of average quality, and the prices

obtained in most districts of the country highly remunerative to the grower, whether sold by the acre, and thus relieving him of all further trouble, or dug by himself and sold direct to the retailer or consumer. From a correspondent in the west of Scotland we have information that on many farms south of the Clyde disease is quite unknown, and an immense trade has already been done in sending potatoes by rail to English manufacturing towns, so much so as to make it a matter of anxiety whether it may not have to some extent been overdone, and a sufficient supply not retained in the several districts for table use and for seed. Prices have had a wide range when sold to dealers by the acre, running from £20 to nearly £40, and so well have the crops turned out in general that large sums have been cleared by those engaged in the business. This is highly gratifying to the farmer and will to some extent make up for the losses sustained by the partial or total failure of the turnip crop. The increasing scarcity of labourers has compelled large growers of potatoes to look about for other methods

of raising them quicker and more economically than the implements ordinarily used by hand. Of these we have latterly seen nothing so good or so generally useful for moderately-sized farms as a brander-like attachment fitted to the drill-plough after the boards have been removed; taking every second drill, so as not to cover the potatoes which have been exposed until time has been given to have them picked up, every tuber is brought to the surface and shaken free of the soil, and although a little assistance is necessary with the broad-pronged fork, so as to make sure of nothing being left, it is so slight as to be scarce worth mentioning. Although this invention has been known for at least 25 years, it is rather surprising that it should have been so long before coming into general use, its utility being so obvious. In its improved form it has come into very general use during the past four or five years, and now any farmer may get the potato-raiser attached to his drill plough at the expense of a few shillings. A second source of anxiety in connection with this crop has been the apprehension that in consequence of the large number of growths attached to the original tubers, the keeping properties of the entire crop may have been seriously injured, and hence a desire on the part of many to dispose of the greater portion of their produce. Although such a lengthened drought is seldom seen in this latitude as that which has been experienced in the present year, yet there have occurred from time to time dry periods of sufficient duration to cause the very same kind of growths which have been so plentiful this season. In no year does their presence appear to have affected the keeping qualities of the crop to such an extent as to make it the subject of general remark, and it is extremely probable, from the general soundness, freedom from disease, and even meanness of the offsets themselves, that they will not only keep well, but be useful both for consumption and for reproductive purposes when the season again comes round. In storing for the winter, when the quantity is large, there is no available plan open to the ordinary farmer so good as the pit. It is capable of extension to any amount; the width can be so managed as to completely obviate all tendency to heating, and the covering regulated in such a way more or less, according to situation and exposure, as to completely exclude frost and the losses that are the certain results of its penetrating to the contents of the pit. Potatoes keep well in a roomy house in which there is good ventilation, a continuous circulation of fresh air being highly essential to their remaining fresh and juicy to the end of the season. To preserve the reproductive principle much care is required in storing the potato, as of late years it is extremely susceptible of injury, and much of the loss from blights in the drills is clearly owing to the careless way in which the crop is put out of hands when lifted. A very slight degree of heat evolved in the heap destroys the germ, and therefore renders useless for seed the whole of the tubers which come under its influence. A sprinkling of the earth in which they grew, laid on so as to thoroughly mix with each layer as they are brought in, is a great assistance to their keeping well and in a great measure lessening the danger of heating; it prevents the potatoes from lying too closely together, preserving to some extent a circulation of air through the heap, and if a few should become rotten they are prevented by the intervening particles of earth from contaminating the sound ones, and the moisture of those which become decayed is in a great measure dried up. Using potatoes for seed which have been injured by indifferent storing is both a loss and disappointment to the party so doing, and the unpleasantness becomes even more acute when a portion has been sold to neighbours to be used as seed and fails to come up. In this case there is some danger of litigation, with all

the annoyance and expense inseparable therefrom. Even should this contingency be avoided through the forbearance of the sufferer, it is galling to any man to know that any transaction by which he has profited has proved a loss to the purchaser, who probably is his nearest neighbour.

**MANGOLD WURZEL.**—This crop will on many farms be the principal dependence for the coming winter and spring, having in most districts, where extensively grown, suffered less from the dry weather than the turnip. Almost under any circumstances it should not be used in the early part of the season, as it is then anything but wholesome food. The acrid juice, of which this root contains a large quantity, has an extremely irritant effect on the stomach and intestines, inducing such a state of looseness in the latter, as to prove highly prejudicial to the animals feeding on it. February is the earliest month for beginning on the mangold heap, as it cannot be done earlier, and have the full benefit to be derived from the crop. By that time the juices are in a great measure dried up, and the roots are excellent food, relished and thriven on by all the domestic animals, not excluding the horse; a small quantity pulped and mixed with chaffed hay, being a good supper for the farm-horse. The leaves of the mangold being bulky add considerably to the stock of food, and are highly prized by many farmers. Others neglect them, considering that they are more valuable ploughed in as manure, and ultimately make more money by assisting the wheat-crop than they could ever have done had they been used as food. On farms heavily stocked, and with the turnip-crop either a total or partial failure, the mangold tops are likely to be utilized, as, indeed, we decidedly think they should be, as the leaves of ten acres would give a large stock of morning and evening feed for several weeks, a consideration few can afford to overlook just at present. This plant being so susceptible of injury by frost, it is scarcely safe to delay lifting the crop much later than the first week in November, sharp frosts of several nights' continuance occurring so frequently in the course of the month. When it happens to run rather late before it is found convenient to get them out, it is better to let the tops remain on, even at the risk of losing them for food, as they are a great protection in the event of frost. The necessity for having the ground cleared for wheat is another strong inducement to begin early, and with two such powerful reasons for the seasonable storing of this crop, no effort should be spared in getting it placed out of danger. The keeping qualities of this root are all that could be desired when lifted in good order, and they must be very carelessly built up indeed, if they do not keep for seven or eight months as sound as the day they were taken out of the ground. It is not at all requisite that the roots should be cleaned in any way when taken up, as a certain portion of earth adhering is rather an assistance than otherwise, when they happen to be kept for an extended period. Mangolds may be stored in a house, and do very well when the bulk is not too great; but there is not the slightest necessity for providing house accommodation expressly for them, as they keep admirably when ricked in the open air. Seven feet is a fair breadth for the ricks, and by sloping them gradually until about the same height a great weight of crop can be safely stored in comparatively little space. Some men cover in whole or in part with earth; but a fair covering of thatch secured with ropes in the usual way is quite effectual in preserving the contents of the ricks from injury.

**CARROTS.**—When the soil is suitable for this crop, it is questionable whether there is any other known to modern agriculturists which will make as much money. The price is always high; and, consequently, even a middling crop will make a great deal of money; but when the

conditions under which the crop has been grown have proved favourable, it becomes remunerative almost beyond belief. To the farmer it is chiefly valuable for horse-food, effecting a considerable saving in the consumption of oats, and even hay, while the animal is kept in excellent health and condition. The carrot, although not liable to injury from ordinary frosts, is generally taken up at the same time as the mangel crop, so as to get the land cleared. From the length of the root, it becomes necessary to take more care in lifting than is required for the other root-crops; otherwise, many will be broken over, and left in the ground. Before attempting to pull them, they should be loosened with the spade or digging-fork, which materially lessens the labour of pulling, and completely prevents waste. There is no difficulty in storing the carrot-crop, the same mode of building up being followed as described for the mangels, the breadth, however, not exceeding five feet; and the thatching and roping in all respects the same. Horses eat carrots greedily, in whatever state they may be placed before them; but there is probably no way they can be given with so much advantage as by pulping the roots and mixing with a portion of chaffed hay. In feeding with roots of any kind, this system is excellent, as the horse fills himself quickly, and can then lie down and rest—a matter of much moment to a hard-worked animal.

**TURNIPS.**—Unfortunately, on many farms and even districts of country, this season's crop will not be difficult to dispose of; yet, as its scarcity makes it all the more valuable, extra care should be taken in carefully storing it, so that its nutritive properties shall be preserved until the spring is well advanced. Ireland is much better off for turnips than either England or Scotland, the drought having not set in quite so early in the season there. In many counties they are an excellent crop, and in most a fair average. Although the turnip stands a good deal of severe weather without suffering much apparent injury, it is better to have the crop lifted and stored before the end of the year at furthest. A succession of freezings and thawings cannot but be injurious to the nutritive properties of the bulb; and although the amount of in-

jury done may not be very noticeable at the time, it is pretty certain to show itself in the long run, by quantities of them becoming rotten and unfit for use at the very season they are most in demand, and can but very badly be done without. When safely stored, without having been exposed to severe frost, the nutritive properties are preserved, and their keeping qualities remain unimpaired. In storing turnips more care is required than is necessary with either the mangel or carrot, as they are extremely liable to heat if put together in too great quantity, and when heated, if they do not decay at once, become so light as to be comparatively valueless. Whatever way they may be made up, it is absolutely imperative that they have a free circulation of air. Turnips should never be built against a wall, unless the quantity is very small indeed, as, when stored in this way, there is not thorough ventilation, and much loss from rotting is almost certain to be the result. When stored in the fields where they grew, to be used for sheep, the bulbs can be built up very handily in narrow heaps, and covered over with as much earth as will keep out frost. This mode is very convenient, as the crop is not only secured from the weather, but placed in the very position most suitable for the purpose for which it is wanted, now that it is so much the practice to cut up the turnips in the field for sheep-feeding. The machine can be brought to the end of each heap, and the turnips filled in with comparatively little trouble. When removed to the yards, building in narrow ricks, not wider than 5½ feet at the base; and thatching carefully is a plan which gives great satisfaction, as, from the smallness of the bulk, there can be no heating, and the bulbs remain fresh and sound at the end of the season. From the high value of all feeding substances, and the probability of the spring seeing them still higher, it is well worth while to give the storing of the home-grown crops increased attention. Losses from letting them remain too long in the fields, and so getting injured by frost, or from careless management when brought in, will be doubly annoying, with the knowledge that, with the exercise of a little foresight, and the engaging of a few extra hands for a short time, the whole could easily have been prevented. J. S.

## THE HERDS OF GREAT BRITAIN.

### CHAPTER LVI.

#### MR. BORTON'S AND MR. FOLJAMBE'S.

There is no name better known among Yorkshiremen, and regular visitors to the Royal and North Country Shows, than John Borton. He learnt his lesson as a flockmaster in a good school, under his grandfather, Mr. William Key, at Northolme and Musley Bank, near Malton. The old gentleman, who died in 1832, and whose portrait is preserved to us on the canvas of Jackson, with his hand on the head of one of his greyhounds, was, along with Mr. Marshall, of East Newton, Mr. Dowker, of Salton, Mr. Kendall, of Ness, and Mr. Richardson, of Lund Cote, where Mr. Sonley, now lives, a leading Leicester ram breeder in the Malton district. On his grandfather's death, Mr. Borton's uncle, who succeeded to the property, presented him with ten ewes out of the hundred which composed the ram-breeding portion of the flock. These he took to Habton, where he commenced in 1833, or, calculating by the Yorkshire Calendar, Rockingham's year—"to paddle his own canoe," and eventually settled at Barton-le-Street, in the

Vale of Rydal, seven miles from Malton, and twelve from Helmsley. Next year he bought a score of ewes at Mr. Dowker's sale, and began as a ram-breeder at once, while his father pursued the same business at Kirby Misperton. His fourth year of farm life found our young flockmaster in the show-field; and two firsts and a second for shearing rams at Hackness and Thirsk were the best proof that he had not reckoned prematurely on his strength. When the Yorkshire Agricultural Show met at York in 1839, the hero of these two firsts was beaten by a sheep which Mr. Wetherall bought at Mr. Edwardes's sale; but the much coveted head prize for shearlings was won at Leeds the following year. In 1842-46 he showed very little, but brought up his reserves in full strength when the Royal came to York, and had £75 of cash to receive from the secretary, as first with the shearlings and aged sheep, and first for the local prize. Since then his entries have seldom been lacking at the Royal, or North of the Nen; and with Sanday, Cresswell, Iuge, Wiley, Jordan, Pawlett (whose Chester ram he bought), and "all the swells" in the field, he has never shrunk from battle, and

—M M

has seen the winning rosettes over his pen nearly two hundred times. At Doncaster, in 1865, he had two firsts and two seconds for rams, and a first for gimmers, and his winnings in one year reached £170.

As time went on he kept reinforcing his ewe flock from Mr. Allen's of Malton, and bought a score of gimmers from Sir Tatton and Mr. Sanday. For five seasons old Sledmere was his mainstay, and before he purchased him (for 25 gs.) he had sent ewes to him. The blood was partly his own, as he gave 28 gs. for his grandsire, then a shearling, at the sale of Mr. Owston's, of Thorpe Bassett, who not unfrequently accompanied Sir Tatton on his rides to Leicestershire. The old baronet attended the sale of his dead friend, and liked this shearing so much, that he sent ten ewes to him. There were only two tup lambs among the produce, and Sir Tatton never parted with one, which was the sire of Sledmere. Mr. Borton bid 60 gs. for it when the Sledmere flock was sold, but Mr. Hall, who has (as might have been expected of so keen a judge) been very often after the same numbers, got him for half-a-guinea more. Hence, Mr. Borton had to be content with the son, instead of the sire, and "by Sledmere" is in the pedigree of Blair Athol, Sir Tatton Sykes, and in fact, most of his best prize sheep for four or five years back. The old ram only died this year, and was honourably buried in his skin. His son Sir Tatton Sykes, from an Eddlethorpe ewe, won at Worcester Royal in '63, and upwards of thirty times as well. He formed part of a trio which won Lord Lonsborough's Cup, at Market Weighton, which Mr. Borton has carried off twice; in fact on the only occasions that he tried for it. Mr. Jordan took this ram twice at 30 gs. and 40 gs., then he stayed two seasons in Cornwall with Mr. Tremayne, at £40, and Mr. Hendey at 35 gs., and has been used at home for two seasons. His own brother, Blair Athol, began well by beating 42 shearlings at the Plymouth Royal, and since then he has been principally let, and won his prizes in Mr. Hutchinson's of Catterick's hands. Mr. Borton may well say, that the fusion of Sledmere and Owston blood on Dowker, has been his mainstay. His Sir Tatton by Sledmere, from an Eddlethorpe ewe, and bred by the late Sir Tatton Sykes, was also a good sheep, and won at the Yorkshire Show at York in '66; and Black Eye by Ebor (another York winner), from a Sanday ewe was his champion at the Newcastle Royal. So far Mr. Borton has sold and let rams as high as 40 gs., and given Mr. Sanday 60 gs. for a hire. The ewe flock generally ranges from 150 to 170 in number, and upwards of 50 rams are let annually, at an average of 12 to 15 gs. In some years it has been as high as £16. Customers come principally from Yorkshire, Notts, Devonshire, and Ireland. Mr. Foljambe hired rams from him in 1866-67, and the first Yorkshire shearing was to have gone to Osberton this year, but he unfortunately died when he was being prepared for the Scarborough Show, and Mr. Borton stood first and second in the class without him. His death was quite unaccountable, except it was from high feeding, as he was found to weigh 42 lbs. per quarter. Mr. Borton has also a good selling trade, and sent two rams this year to Prussia, for which country two more are under orders.

His present farm, which belongs to Mr. Meynell Ingram, consists of 460 acres, on limestone rock. It is mostly arable, and there is very little old grass. It suits swedes, grey-stone, and whiststone turnips very well, but no mangel is grown, as Mr. Borton does not admire it for sheep food. The little show meadow is just behind the house, but it looked dreary to what it did when we visited it before, and found the hirers round the pens, the Union Jack flying on the refreshment booth, and Mr. T'Anson in his green and yellow cravat, and with a "correct card" of the sheep to be let in his hand, gravely

examining Blair Athol. The old ram, however, was here again by the side of Sir Tatton Sykes, and so were the Royal and the Yorkshire sheep, with the twins Blue Cap and Blue Face, the first and second at Scarborough, while Bridlington was on the broken-down list. The fifteen-year old ewe which we had seen such a perfect skeleton, and taking her grass on her knees, had joined old Sledmere in the Happy Pastures, and the capital second pen of Royal gimmers will be lucky if they can earn such a character as this "Belgravian mother" of the flock. Mr. Borton has put 162 ewes to the tup this autumn. The six tups which he selected for them were the three-shear ram which took the second prize at the Leicester Royal, and at Wetherby; a two-shear son of Blair Athol; a shearding by Black Eye, out of Sir Tatton Sykes's dam; the twins Blue Cap and Blue Face, by Black Eye, out of a ewe by Owston, a Lincoln Royal winner; and an aged ram by Black Foot, which won at York, and several other places.

Hull was plentifully placarded by its four expectant M.P.'s to prove that "Codlin not Short's your friend," in Downing Street, and we were glad to be over the Humber, and among the big and thick-fleeced rams, Quid, Patron, and Co.—Leicesters from the flock of 80 years standing without alloy—in the Dovedale Paddock at Aylesby Manor. Some familiar faces—John Booth, Nainby, Frank Lee, Gibbons, and Tom Brooks were lacking when we sat down in the old barn, whose rafters once rang again with their merry jokes and speeches, and we could only drink in silence to their memories. A survey of the long and low Blinkhoolie, as the herdsman held him on the garden green, and a ramble among those Booth matrons, Blink Bony, Wheel Royal, Easter Flower, Guiding Light, Fair Dase, Clarence Flower, and Bright Queen, which have taken up the tale of the grand Vanguard cows of other days, with the youthful Lady Zillah, Warrior's Plume, and Cherry IV. to follow, finished that September day, and we were once more on the move and away for Osberton.

The five-mile drive from Retford is a very pleasant one, past Babworth and Ranby—once a home of good Short-horns, but not to be confounded with that of Blythe Comet some six miles away. It is a strongly wooded country, and lies on the very edge of the Dukery, only six miles from Welbeck, and half as many from Clumber. The Top Wood is one of a great chain of coverts, and Scofton Wood, which abuts on a wild heath, covered with haw trees and brackens, is not only a great nursery for litters, but quite a city of refuge for foxes without a settlement. It lies about half a mile from the Scofton steddung, up a long green lane, which John George the head herdsman uses as a training ground for his bulls. Scofton itself has quite a colony of dwellers round its village green, as George and the gamekeeper, the gardener, the woodman, the wheelwright, the blacksmith, and the foreman, &c., all occupy cottages with neat gardens, in which asters, French marigolds and dahlias are "the rich relics of a well spent hour" after the day's toil. Some black-breasted reds, whose blood may be found at White-wall, were strutting about near the stacks, which might, by their mathematical uniformity and finish, have gladdened a housewife's eye, in the Dutch Paradise of Broek. We learnt on inquiry that it is a sort of accepted rule to have them all trimmed and ready, if possible, by the Doncaster week.

Mr. Foljambe has about 400 acres of arable and 250 of pasture in hand. The red sand which begins about 1½ miles south-east of Retford, is not favourable to strong herbage, but it grows good red rounds, and swedes, and a fine quality of yellow globe. None of these crops failed this summer, as they were never hoed till the drought was over, and flourished bravely under their own shadow. The soil also suits carrots remarkably well, and

some specimens of it have taken prizes, but the mangold is almost invariably burnt up. No rape is sown, and the game make rather free with the tares. May, June, September, and October are the best grass months, and the pastures dry up very much in July and August. When milk is scarce under such circumstances, the calves have a good deal of linseed porridge; a little cake till they are eighteen months old is also their portion, and chopped straw, and pulped turnip or mangold with a little bran, instead of hay, after they have turned the year. The house dairy is composed half of Alderneys and half of Ayrshires, and the former are found to give 10 per cent. more cream than either Ayrshire or Shorthorn, in a white delf dairy, which is always kept at 60 degrees.

The Shorthorns, of which there are some forty head, were all reared on the place, with the exception of Lord Lyons. Mr. Foljambe's career as a breeder of Shorthorns dates, like Captain Gunter's, from the Tortworth sale, where he bought Mantilla (110 gs.) by Cramer (6907), a very neat cow of the Minna by Nestor (452) tribe. Man Friday (14898), a good red bull by Lord of Brawith (10465), which was then sojourning at Mr. Champion of Banby's, was her first calf; but like his dam, he died from an accident, and only left one heifer, Mrs. Fry, the *g.d.* of Robin, and the *g.g.d.* of Knight of the Crescent. Sympathy, the dam of Mrs. Fry, was purchased from Mr. Champion's with her twin-sister Symmetry, and with them came Seraph, another of the Lady Sarah by Satellite (1420) tribe. Monarch (18347) was then bought for 150 gs. from Mr. Hutton, of Gate Burton. This bull was bred by Mr. Wilkinson, of Lenton, and went back through Wiseton Lady to Mason blood. He was the sire of Blanche and Seraphine, from Seraph, and Seraphine's is the leading line in the herd. Mr. Ambler's sale furnished Mayduke (16553) by Grand Turk (12969), from Cherry 4th by Gainford 2nd (10255), then only a calf of a day old. In process of time he begot Archduke (19239) from Blanche, a first at the North Lincolnshire, on the first occasion that Mr. Foljambe ever showed a bull, and subsequently sold to Mr. Brown, M.P., for 200 gs. Cenerentola, the dam of Lady Slipper, and of the Farewell by Young Matchem (4423) tribe, was purchased at Mr. Champion's sale; and Bride of Booth's Verbena tribe, from Mr. Ambler's; and Hebe, a Captain Shafto cow, from Drax Abbey, also found their way to the Osberton meadows.

The hit with May Duke was followed up by hiring for three seasons, from his breeder, Mr. Carr's Imperial Windsor (18086), a highly-commended calf at the Leeds "Royal;" and Robin, who has no Herd-book number, was by him from Miss Nightingale (by May Duke, from Mrs. Fry). "The Imperial" was by Old Windsor, from Farewell by Royal Buck and May Fly from May Duchess (own sister to Arch Duke), Cherry Blossom from White Heart, Lily of Windsor and Rose of Windsor from Blanche by Monarch, Florence, from Mrs. Fry, and Gipsy Queen—the first winner of "Royal" honours for the herd—from Sibyl, testy to him as a clever heifer-getter. Robin only appeared in public once, when the Yorkshire Society held its wet and weary tryst at Doneaster in '65; but he did all that was required of him, as his beautiful handling soon decided the point between him and Mr. Pawkes's Priar Tuck, which had just taken a "Royal" first at Plymouth. Gipsy Queen was only out in public three times. The Newcastle "Royal" decision was reversed in Mr. Booth's favour at Howden, and she took a North Lincolnshire first at Gainsborough.

The purchase of Knight of the Garter (22062), a bull with deep flesh, and on a short leg, for 225 gs., from Mr. Carr, was another great Farewell tribe success. He was by Knight of the Grand Cross (22064)—a Booth's Prince George bull—from Dame Quickly by Velasco. In consequence of an accident he could

only be used for one season; but he nicked well with the Hebe, Bride, Lady's Slipper, and Seraphina blood, and left four bulls and ten heifers. None of his females have been made up as yet; but his four knights (Thistle, Whistle, Bath, and Crescent), from Queen of the May, Blanche, Miss Nightingale, and Mayfly have all taken firsts at Leicester, Wetherby, or Grantham. Robin has departed on hire to Pantona, leaving about a dozen heifers, and cows in-calf behind him, and Lord Lyons by Hengist (19943), from Blush by Third Grand Duke (16182), *g. d.* Bashful by Prince Imperial, sire of three Duchesses, which made 1900 gs. at Willis's Rooms, has entered on his stall. His first fruits, a white bull-calf from Serenade, was dropped on the morning of our arrival.

The calves, of which at least three-fourths are of Seraphine descent, are all brought up by the pail, and however well a steer-calf may frame for the Smithfield Club or Birmingham, he has precisely the same treatment. These Christmas successes have been of no unfrequent occurrence. In 1865 a May Duke steer was second in his class at Birmingham, and second to Mr. Rowland Wood's ox for the Cup. The Cattle-plague regulations prevented him from going on for Smithfield honours, so he was sold for 100 gs. to a Sheffield butcher, and his dead weight proved to be only 6 lbs. short of two thousand. He was out of Snowflake of the Seraphine tribe, and an own brother in blood was third the same year in London. Last year an Archduke steer from Florence was second at Birmingham, and then headed his class in London, and was the reserve number for the Cup; and Mr. Woods, whose heart is quite with Shorthorns, and went over this summer to judge in Ireland, has another steer of the Snowflake blood "in preparation."

Mr. Foljambe has been a breeder of Leicesters and Southdowns for more than thirty years, and he always keeps ten score ewes of each sort. Leicester rams have been hired from Burgess, Stone, Wiley, Sanday, Pawlett, Creswell, and all the leading flocks. The wether hogs go off to the butcher at thirteen months, and so do the ewe hogs, with the exception of fifty, which are drawn to go up by succession. Rams and ewes from both flocks have been sold to Germany, New Zealand, and America; but the show sheep have come almost entirely out of the Leicester ranks. The first prize was gained with Leicester rams at Nottingham in 1847; but the store sheep are never shown now. In the same year Osberton drew first blood with a £20 prize for Leicester wethers at Smithfield, and 29 firsts have since then been added to the Christmas score, within the Club walls or at Birmingham, where in 1857 Mr. Foljambe took the cup for "the best sheep in the show." In 1850, the gold medal for the best Leicester pen fell to his lot at the Smithfield Club, and similar honours awaited him in 1853 and 1861-63. The flock has also taken prizes in the extra stock class, and among others in 1861 with a ewe seventeen years of age, and without a tooth in her head. She had bred fourteen lambs, and brought up one capitally that very year. Both flocks are kept in the Park, and the wether hogs, which begin with a little cake in September, generally find their way to the Sheffield market at 20lbs. to 24lbs. per quarter. One lot of a hundred hogs made £300 out of the wool. The wool is sold privately, and the Leicester flock generally clip 8lbs. all round, and the Southdown 2lbs. less. In 1864, both were sold together at 70s. per tod. In some years they have made the same; but the Southdowns may be taken on the average at 4s. less. The Southdown flock is from Mr. Jonas Webb's strains to begin with, and the rams have been hired from Lord Walsingham, Mr. Henry Webb, and Mr. Rigden; but latterly Mr. Foljambe has principally used his own. Occasionally, the wether hogs have been made up for

the Sheffield market at 20lbs. a quarter on cake and cut turnips at fourteen months. All the cull gimmers are summered and used at the hall in the autumn. The dry park suits them to a nicety, and Mr. Woods has observed that they have more doublets than the Leicesters.

Leaving the church to our left, and shaping our way under a sultry sky to the tree clump on the other side of the park, we found the greater portion of the herd. Old Snowflake, its twelve-year-old head was there, throwing up a large cushion from age, and making one of a trio of whites along with her daughter Snowdrop and her young steer, Clarionet, whose Robin bull was sold to Mr. Mann, of Scawby. Clarionet bore testimony with a nice-shaped udder to being the queen-milker of the lot, and old Hebe was represented by Hebe's Cup and Ambrosia, own Archduke sisters. Lady's Slipper was not particularly nice in the head; but her rare middle and nice hind-quarters caught our eye, and she looks young for nine. Queen of the May, another May Duke, and also going back to Pilot (496), does not bear her years so well. There is good reason for that. She was very severely held and off her legs for five weeks, when ten days saw the whole herd down with foot-and-mouth in '63, and she nearly lost one of her hoofs. Knight of the Thistle is from her, and we have not to look far for Florence from Mrs. Fry, a white with red ears, and the dam not only of Flora, the first-prize calf at Wetherby, but of the reserve steer of last year. She herself was put forward for Smithfield, and then reduced, and looks wonderfully well after that process, which also failed to injure Lily of Windsor. Her prize steer was the result of a stolen visit to Archduke, when she was only fifteen months. May Fly, a heifer with nice shoulders, improves upon her dam May Duchess, and has that thin rat-tail which distinguishes so many, and which feeders especially like to see. Queen of the Forest "is a character, and no mistake," and has to be shut up at night, as she takes every gate off its hinges with her head. She and her half-sister, Gipsy Queen, whose show-feeding has left her unscathed, are fast friends (like Mrs. Page, half-sister to Robin, and Mrs. Quickly), and therefore when one goes off on these Rebecca expeditions, the other is sure to be missing. The latter is quite in breeding condition, and has had four calves—Archduchess 2nd, Zingaree, a bull-calf by Robin, and another bull which was sold as a yearling for 100 guineas.

Rose of Windsor from Blanche was in a paddock opening out on the green at Scofton, and has been crippled by slipping her stifle joint. In her style and colour she reminds us not a little of Duchess 77th. There has been a fatality over her so far, as her heifer calf by Falstaff (own brother to Gipsy Queen) broke its back. Mr. Foljambe has fared differently with her half-sister Flora from

Florence, which was the reserve calf at Leicester, and first at Wetherby. She is a nice compact calf, with good quality, and a very thrifty one, as she made five inches in the four weeks before she was brought out. Knight of the Crescent and Knight of the Bath went pretty nearly as great progress, and the latter has done well since he took his Royal first. The Green was soon quite a King Arthur's Round Table when the four Knights, all of them sons of Knight of the Garter (22062), marched out from the gateway and walked round in a circle. The yearling Knight of the Thistle from Queen of the May and the bull-calf Knight of the Whistle from Blanche were first and third in their classes at Wetherby. The big rich-haired roan, Knight of the Bath from May Fly has the curly head in perfection, which belongs more or less to all the Knight of the Garter sort, and promises to make a slashing bull. He is more split up behind than Knight of the Crescent from Miss Nightingale, and as the Premier said of an ex-colleague's speaking, he rather "lacks finish" in comparison. He may well, as he is ten weeks younger. "The Crescent" does not hold his head so well, but he is a wonderfully made up bull for his months. The Royal judges did not like his quarters so well. At Wetherby in the previous August his victory for the cup was the most decisive we ever saw. He had only to walk once round the ring, and Knight of Knowlmore, Charles le Beau, and Knight of the Thistle "were quite out of it." There were some rare "suis and strays" still left among the snug buildings in the yard, where the pulping, chaff-cutting, cake-crushing, corn-grinding, and thrashing, &c. are all done by water power. Imperial Windsor could boast of the good-looking white Cherry Blossom, second to Lady Fragrant at Wetherby, and not yet destined for the Smithfield Club, for which his very neat-boned Lily of Windsor is being put forward. We were glad to renew our Doncaster acquaintance with the deep-fleshed, nice-handling, and level roan, Robin (24968). He is not a very big bull, although when he was first found in the paddock at midnight Mr. Woods thought him the largest calf he had ever seen. His half-sister Glee promises well, and ought perhaps, young as she is, to have been in the calf class at Wetherby; and Maid Marion from Queen of the Forest did credit to the calf-house, which also contained a young Robin heifer from Snowflake, that remarkable old lady who has had twins three times. Five useful heifers in the Hall field, among which Archduchess 2nd, somewhat like Grady's Faith in the head, and a true Shorthorn, delighted us not a little, were the last objects in our ramble, and then we turned our faces Doncaster-wards, to Barnby Moor, past the old fox-hound kennels.

H. H. D.

## ABORTION OF COWS.

The season of the year is approaching when so much mischief is occasioned in extensive districts of this country by the abortion of cows. As a source of trouble upon breeding farm it has scarcely any rival. To a very great extent, by judicious management, this evil can be held in check, and it therefore becomes the more important to draw attention to the circumstances which are productive of so much trouble and loss.

The loss of the fœtus may take place at any time between the period of conception and birth. In the earlier stages of growth it is generally unnoticed, but is exceed-

ingly frequent. In the later period of growth it is frequent, but it more generally comes under observation and attracts proper attention. The circumstances which induce this result are various. Still the more frequent cause of that sympathetic irritability which is set up in breeding females may be traced to the abortion of another animal. Most breeders are unfortunately aware of the fact, that when once the cows commence casting their calves it rapidly extends throughout the herd. Prompt separation and the use of disinfectants are the ordinary measures adopted to check its extension.

In this, as in most other occurrences of a like nature, there is generally a starting point which can be clearly defined: and although the majority of cases can be traced to some contagious influence, yet the real difficulty often lies in determining what is the original cause from which the trouble commenced. It is, without doubt, one of the most subtle diseases with which the breeder has to contend, arising, as it so frequently does, from a nervous irritability which is easily excited. Some seasons are much worse than others, and some districts are remarkably subject to it. Great as the sacrifice is from the calves being lost, it is even of greater importance in its influence upon the cow; for when once a breeding animal has suffered from this disease it is always liable to be so attacked subsequently. A much weaker irritant is at each succeeding period capable of producing the mischief. Further than this, some of our best bred stock are the most subject to it.

Without going more fully into the general causes to which we may trace the abortion of cows, we may now draw attention to one cause which more than any other is productive of the disease, and is, in the majority of cases, the starting point from which a vast amount of trouble arises. We refer to the growth of ergotised grass-seeds in our pastures, and the present season promises to be exceedingly productive of them. As a consequence, we may fairly expect in the autumn heavy losses unless care be taken to prevent the mischief being produced. The influence of these grass seeds has been known and watched for several years past; but the facts are not sufficiently known, and in any case they cannot be too prominently brought under notice.

It is well known that the seed of rye is subject to a disease which is commonly known as the ergot: this is really the growth of a dark-grey horn from the body of the seed in the form of a spur, and this projecting growth is known as the ergot of rye or the spur of rye. It is a most powerful medicinal agent, and in seasons when it has been largely produced in the rye-growing districts of the continent its effects have been most disastrous. The action of the ergot of rye is well known as being a violent excitant which rapidly causes abortion to take place. We have a similar disease appearing upon the seeds of our ordinary grasses, but especially upon rye-grass. Buckman, in his *Natural History of the British Grasses*, states that he has gathered ergot from almost every species of grass. Thus we have notice of a very productive source of trouble for the breeder of stock. It is perfectly true that the ergot thus produced is far from being as powerful as the ergot of rye; but it possesses a similar character, and only needs to be taken in larger quantity to produce the same effect.

There are two conditions essential for the production of ergotised grass-seed. In the first place the grass must be allowed to run to seed, for unless the seed is produced it cannot become ergotised; and the second condition is such influence from the local climate as shall be favourable for inducing this diseased condition. It has not been distinctly determined what peculiarity of climate can be deemed as essentially necessary, but it is equally clear that these conditions are of frequent occurrence. The latter condition is not under our control, but the former is quite within command.

If in the months of August and September a careful examination be made of land which has been grazed during the early summer months, we shall, in most seasons, find specimens of the ergotised grass seeds. They are readily detected in consequence of their peculiar appearance, and especially in the rye-grass, for a small dark horn will in such cases be seen as growing out of the seed. In a moist climate and in wet seasons they are abundant, especially if the early summer has been warm

and dry. Such hot weather naturally encourages the formation of the seed-stalk with its group of seed, and here we have the first step towards the production of this disease, whereas the damp and rain complete the mischief. Cattle are remarkably fond of it, and even seek for it from plant to plant. The consequence of the supply of this ergotised grass seed is soon evident, and the destructive work of abortion having commenced spreads with serious rapidity.

It is perfectly clear that if by any means we prevent the growth of the grass seeds we must also prevent the mischief complained of. In dry seasons grass can rarely be so regularly fed as to prevent the seed-stem being allowed to grow, but it would involve only a small expenditure of labour for such ground to be brushed over with a scythe, and the seed-stems cut down before the seed is fully formed. This being done, such ground may be considered perfectly safe until the following year, and also the danger may be avoided by keeping breeding cows in the early autumn upon grass which has been mown, and where there is no danger of the grass having run to seed. The preventive process is remarkably simple, but the remedial process is surrounded by danger and difficulty. We have here to contend with one of the most powerful of the diseases to which cattle are subject, and of a destructive character of unknown extent. Not that the disease is as fatal to the cows as many others, but it impedes the increase of the herd by the fatality of its influence upon the calves. Still it is satisfactory to know that so far as regards the cause now referred to there is neither much difficulty nor any great expense involved in its prevention. We have observed its adoption with great pleasure, well knowing the serious losses which many breeders have suffered before discovering the real cause of their trouble.

If the existence of this ergotised grass seed were rare it would be of less importance, but such is not the case. It is rarely produced before the end of July or early in August, but the date of its appearance must vary in different districts, some soils being much more early and quick than others. Grass which has been grazed during the summer months will almost always—in the western counties of England especially—give signs of the ergot after the early autumn rains, but the eastern counties, although not entirely free, are much less subject to it. The indications of the ergotised grass seed are so simple and distinct that they are well worthy of the notice of breeders wherever they have had cause to complain of abortion in their herds.

It had been considered by those who have carefully studied this peculiar disease, that we are apt to limit the influence of abortion considerably within its real sphere of action. When a breeding cow has from this cause lost her calf we have evidence which we do not fail to recognise, and we also know the prejudicial influence upon any future attempt to breed from such a cow. We do not, however, sufficiently recognise the injury occasioned by young heifers being brought under the influence of this ergotised grass seed before they are intended for breeding purposes.

We also overlook its action upon breeding animals in their early stages. Many an instance could be given of excitement being thus commenced by the ergot, which has caused the cow or heifer to become most tantalising as a breeder; not that they have failed to commence breeding, but that the existence of the fetus has been promptly terminated, and the work has to be commenced again and again. The hot and dry season we have had this year will doubtless give many opportunities for preventing or for enduring the injurious effects of ergotised grass-seed.



## THE NEW FARM.

How time does gallop! One cannot get through the half of what one wants and feels one ought to do. I find myself always at the last moment in arrears to you, most indulgent Editor.

Well, and what have we been doing lately upon this farm? One of the latest events is my having been fortunate enough to win the prize for the best crop of mangold-wurtzel within a considerable radius. The crop was so cheaply grown (in a previous article I gave particulars of the way in which I treated our light soil) that I feel doubly proud. Any one, with a fair purse and good eyes, may buy stock for competition, although it does not follow that he will produce from those purchased elements animals equal to the parents; but I feel—too triumphantly, you will say, perhaps—that to have grown the best piece of mangold-wurtzel in the district during this disastrously-hot year with only one ploughing, and having sown about the latest of all around me, is really a feat over which one may fairly smoke a comfortably reflective pipe.

We have had the "Long Firm" tapping at our door lately pretty often. The last dodge they adopted was forwarding a circular of prices which they were ready to give for apples and potatoes "in any quantity" to the various local postmasters, to whom they offered a commission upon all purchased, on the condition of their spreading the inquiry. I sent them a large offer of both fruits, only with the proviso that the cash must come previous to the goods being despatched. Of course, I need not tell you there was nothing heard farther of the parties.

We have been all storing quantities of acorns and chestnuts for the pigs in winter, any quantity of which we can get gathered for 1s. the bushel acorns, and 6d. the bushel chestnuts. A high wind that has just sprung up will help the accumulation. Unfortunately it is down stream, so that we cannot get a sail upon the river.

The spring-planted potatoes are, I fear, a great mess. We are waiting for a fine day or two to raise the burden of the crop with Howard's new plough, and so in a certain degree one nurtures hope. A lot of the garden-grown, however, that has been raised exhibits a great deal of rottenness in the state. I am having a piece of stubble deep-ploughed, to set all the bigger diseased tubers at once, as we take up the main crop, and only hope that the experiment will answer next year as successfully as it did this.

We have a number of hands raking up the abundant downfall of dead leaves where they lie thickest in this woodland district, to be strewn with a free hand over a mattress of nut and elm chippings, which are packed in the basin of the yards, after the fashion of the heather couch upon which the Highlanders bore the wounded Waverley. Only pack the twigs close enough, and it affords a most elastic bed for the cattle, even in what would otherwise be wet spots.

The missus nearly lost her best Alderney a few days since, and unhappily I hear that the disease which struck her down, has made sad ravages around us. She was saved, undoubtedly, by the strong dose of salts and ginger, that she at once got when we found her to be ailing. I ought to have put opium in also. That omission the veterinary surgeon (a most able neighbour luckily) did upon being summoned. These little cattle, which are usually tethered upon the orchard sward were allowed to

run free one day. Whether she fed too heartily or not upon the rank growth beneath the trees, or swallowed acorns and such like in deleterious proportion, any how she took to scouring violently, shrank beneath the pressure of my hand along her spine, and had her nose quite burning dry. It was an attack of what the old farmers called "scouring rot," or "dysentery," but what is now spoken of as typhoid fever. We kept her up with plenty of wheaten gruel, with chopped and melted mutton suet in it, a recipe which I knew to have saved a poor fellow under a severe attack of dysentery during the Crimean campaign. The little cow is now gradually coming round, but continues very weak.

We were recently very much provoked by having a boar disqualified for the prize, in excellent company, at an adjoining county show, as being incapable of breeding, although we have his stock in our hands, and although he was passed by the veterinary of the Royal Show in much higher condition. So much discretion as this should not be allowed to judges. Their business is to select the best animal, and leave all such questioning of disability to the scientific inspector.

We were all delighted that the Didmorton Shorthorns sold so well. They were a grand solid-framed, waltz-coated, mellow-fleshed sort, and would, if they had possessed at more length the fashionable pedigrees of the day, have fetched most reckless prices. The whole affair was well managed. The arrangements, and the neatly-dressed, respectable-looking old servants, with their most intelligent earnest boy assistants, told of a well ordered establishment.

I have since seen some purchases made at that sale in strong company, and they quite hold their own as regards style. There was what is so often wanting in herds, but which should be a main object of the breeder, a most marked uniformity of type and character. The young aristocratic breeders, who came out upon that occasion, will find that they have a good foundation to build upon by the help of the more terribly high bred bulls.

Talking of "breed," the day must come when other originators besides Bates will be credited with the wizard character that we all allow to that great man. So don't be too rash young breeder in rejecting first class animals of long pedigree, even though the elements be not all of the excellent Duchess strain. The exquisite Bolivar is a considerable mixture I think, and yet he will be celebrated.

I want the shrewd Culeshaw and the Messrs. Booth to get into these patent American coffins, giving out that they are dead, and after their ascent to the air again to be perdu in some outlandish district for a dozen years. They will see then how it is only the misfortune of their being alive that is against them; and they will find that they will have to pay fabulous prices to recover choice animals of their favourite strains—as tremendous possibly as existing fashionable relics of a departed breeder fetch.

We are all glad to welcome Mr. Thornton's Shorthorn Circular, but to make it really valuable, besides keeping advertisement sheets, he ought to give us slices of the lore respecting the earlier days of this grand bovine race which he is said to possess; reliable anecdotes of the bulls and cows, whose names the Herd-book holds, and particulars of Shorthorn sales long gone by. The padding of recent matter, such as we all have for ourselves or in the Journal (e.g. the prize list of the Royal Society's last

meeting), I regard as dead weight; anyhow, I wish the publication well.

I see the river is rising. The floods descend from the wild Welsh mountains so rapidly on occasion that we can scarcely be too quick in moving our stock.

I dare say some of you will have read Mr. Lord's description of his bear as a naturalist in North America: a most interesting work I may observe. He mentions a tribe of Indians whose teeth are quite worn away from chewing salmon that have been split and dried in the sun, owing to a coating they get of fine gritty sand blown upon them during the curing. This sort of evil, and even more, we, who dwell along the banks of this lovely but insidious river, suffer from. There is a deposit of fine sand left upon the herbage, which not only grates upon the teeth but accumulates in the intestines and kills the animal. After a flood the more prudent wait for the occurrence of a heavy shower to wash off the powder.

Those lovely young pheasants, which I mentioned before, have become so dreadfully tame, that I am afraid they may come to grief. Not only do they fly up to be fed at the different windows, but they have taken to wandering upon the high road. I don't think, however, that they would allow anyone to catch them: at least we hope not. Having lately taken to feeding my own chickens with Latin crumbs, I must now attend to their meal, for they are hopping and chirping around me. I hope they may never be guilty of such fearful ignorance as I have just heard of occurring in a neighbouring somewhat cider-stricken parish, where, upon a recent occasion, one child explained a picture of Cain and Abel to be "Eve a-wallowing of Adam:" drawing, probably, for his idea upon the experience of his home. The cider question is the curse and puzzle of this country.

At last we have finished taking up our potatoes (spring-planted), and a comparatively valueless crop they are, considering the number of hands who have been employed in storing them, the ground occupied, and the sets. We have several waggon-loads of "seedy" ones, which I shall deposit at once ten inches deep upon the mangold ground, trusting to recomp myself, as the lawyers say, thereby next year for the losses we have sustained through the failure of the turnip this season. Anyhow a diseased "pratee" is noxious, I think, even to the gizzard of a pig, that wondrous animal, which is said even to chew ordinary poisons without hurt. How splendidly my porcine pets are doing upon the slopes, they look so full and sleek. Now, that the acorns and chestnuts are sprouting under the fallen leaves, they seem to possess a doubly fattening quality, as barley does started. Our children have found out that the porker of about sixty pounds weight is the most delicious eating conceivable. Older, they are apt to be too fat, and there is consequently waste, both in the parlour and the servants' hall. I don't know whether it is good policy killing them so young, and I have no time just now for an extended calculation. It is a mode of consumption co-ordinate anyhow with the genial Mr. Mechi's chopping up his beans green, as fodder. My remark as to my milking-cows enjoying the leaves plucked from the growing mangold wurzel, has drawn upon me a long letter from a kind-hearted and shrewd friend, one who knew well old Tommy Bates. He cautions me against the plan, inasmuch as he has proved the mangold leaves to be conducive to abortion. He writes, "Now, as I know from my own experience, as well as from that of others, that mangold leaves and the roots also, if given before Christmas, are *dangerous* food for in-calf cows or sows in-pig, as being liable to produce abortion, I hasten to drop you a line, that you may give a word of warning to your friend Vigil. If he is so hard up as to use them at all,

let them be passed through the chaff-cutter, and *largely mixed* with dry food of some kind, to counteract their cold watery nature and purging quality. I have for a long time ceased to use them for stock of any kind, and now spread them equally over the land, and plough them in." Of course they are full of nitrogen, and, therefore, excellent manure. Mangold roots can, however, be used, if commenced with cautiously, before Christmas without harm, if the precaution be taken of throwing them, a few bulbs, together to wither in a corner of a dry barn. A neighbour of mine tells me that he has failed to get his cows and sows to breed when they have been fed on mangold. It is no doubt like tobacco, a dangerous plant if used to excess. *Medio tutissimus ibis*, as one used to read in the Eton Latin Grammar. "If you want keep," my friend adds, "you will find your swede leaves, if free from mildew, a much less objectionable adjunct; but these also I always prepare in the same manner, and with the addition of some dry food, hay or straw, according to the age of the animal, and increase or decrease the quantity of the leaves according to the effect upon the animal's interior arrangement. We leave the swedes standing in the rows, denuded of leaves, and time the taking up and storing to suit the cutting of the leaves, always endeavouring to get the leaves consumed, and the roots stored before Christmas, up to which time we seldom have hard weather. We find it greatly facilitates the getting up of this crop to run the plough (without the coulter) under them. They are then, by boys, easily picked and thrown into heaps ready for the carts."

I shall act upon this hint, and employ Howard's potato-raiser under my crop, by way of a trial. In fairness to that new implement, convertible into so many useful forms, with so little trouble, I feel bound to mention that in its first development as an ordinary plough it is a grand success. A gentleman who has always had a good deal to do with the machinery part of the Royal Agricultural Show, predicted, as I sat next to him one day at dinner, and somewhat proudly described my implement, its failure as an ordinary plough. I can only say in reply, that my bailiff offered the loan of it ten days since to a neighbour, who proposed competing at a ploughing match, and in a large entry he won the Champion and another first prize. The work was magnificent I am told. I shall always mention deserved success.

A farmer to whom I mentioned yesterday my friend's counsel (as quoted above) respecting the use of mangold wurzel, fully confirmed the statement from his experience this year. An Alderney cow, seven months gone in-calf, slipped it only last week, and from no cause that he could ascertain. It was, however, the fact that he had been feeding her of late a good deal upon mangold leaves. We talked about chaffing, and in the course of further conversation he said that he had been sadly put out by "the earthquake about three years since." He had had new machinery to be worked by water, of which a pool served him with an ample supply. After the earthquake, however, the springs on the upper land failed, and the outflow has most provokingly taken another course upon the other side the hill—another of the vexatious uncertainties to which the vicissitudes of the earth's crust subjects the agriculturist.

The winter is coming on apace here. The leaves have gone all of a run, and the wild-fowl are beginning to make their appearance in small bodies. I shot a teal upon the river close under the house yesterday, and disturbed a woodcock upon the gardener's leaf-mould heap. We had a beautiful pheasant hen upon the lawn just now, very much pied, almost white. I hope we shall find her nest in the spring. The tame ones keep as yet so faithfully about the house, and continue to feed out of our hands.

It will be soon time to have the brood mares off the moorland. One pet hunter that I was obliged to turn out last summer has never thriven at all: \* being naturally a healthy animal, I have been quite puzzled to know why. Last week, however, the groom showed me that her tongue must, a few months since, have been nearly severed. It has healed now; but it must have been nearly off once: as she has a beautiful mouth, I cannot comprehend how such a misfortune could have happened to her.

The Italian ryegrass and trifolium that we sowed upon our stubbles have failed in a great degree. The barley-sheddings have come up as thick as a hay-crop, the escaped ears having been so thoroughly torn to pieces, and scattered by the harrows. I have one field nearly a foot high; I don't know exactly what to do with it. I don't know that the crop would survive the winter even if I were to let it stop: besides, it would put us out of course. Again: I don't like to feed it, because the sheep would nibble the clover as well, and that, I am sure, on our light soil, is a mistake. The rank, autumnal growth of grass has caused us a good deal of botheration. I caught some ewes, the other day, only just in time to save them, by administering strong doses of carbonate of soda and ginger; and now we have a valuable cow, in a very bad way indeed. The V.S. calls it indigestion; but it's pitiable to see the saliva running from her lips, and to hear her groaning. He's just going to "prop" her. What that means I don't know, but, as he says that it is her only chance, and I'm sure I don't know what to do with her, I leave the business to him and my careful herdsman.

It's not all fun, this farming, "on times"! To reward my little men, the other day, for very good behaviour over their Latin lesson, I allowed them to go out ferreting for the first time in their lives. It was a very cold day, and late in the afternoon when we started. Of course their little sisters must go too, and it was a fine sight, to see them all seated upon a heap of leaves, and holding their pe terriers in their laps (the whole lot not being worth a fig I positively believe, if a strong rat had charged them, although, of course, it would have been hereay to say so). listening quite earnestly, as a bunny which had been marked in was heard scurrying about the runs with the white ferret at his heels. Then, when he did come out, and went rolling over and over unhurt in the meshes of the loose net, I thought our Joseph's delight would kill him. Lest, however, the chill evening air might give them cold, they were then hurried home. A neighbor having preserved these vermin a little too fondly, we shall have some trouble in keeping them down.

We had a narrow escape upon the river the other day. It was blowing quite a gale of wind when I went out sailing with a friend. The waves ran very high; but we did very well so long as we ran before them. Having to row back, and there being no steersman, in a very broad reach of the river, we shipped three great seas in immediate succession, and only just got to land in time to bale and prevent her sinking. Another day we must weight the stern better. As we two men were alone it did not matter. However, the next gale that blows I shall enjoy upon the river. They don't come too often.

VIGIL.

## TEXTLESS NOTES.

BY A CROTCHETY FARMER.

We have been told very frequently of late that farming is about to enter, if it has not already entered, a new phase of existence, in which all the magnitude of operations and all the precision of details met with in all trades and manufactures shall be applied, and applied triumphantly, to it. We have been told this so persistently, and by those whose position entitles them to be classed under a cognomen the characteristics of which are the very opposite of my own, that we are bound to believe there is after all something in it. At the same time it has not been explained to us how the manufacturing or trade system is to be applied to a calling the peculiarities of which are certainly in many of their aspects very much opposed to those of trades or manufactures. And this is precisely what should be told us, for in it is involved the whole question. Vague expressions, high-sounding declamations as to farmers having been for so long under the dominion of antiquated notions, and that they must now give them up and advance with the spirit of the times, will not do: we want something tangible to lay hold of—some facts which we can discuss about. It does not follow that because in agriculture, as in trades and manufactures, machinery has come more into use, that its application to agriculture is to come under the same rules, and to be guided by the same principle of policy, which operate in the case of trades and manufactures. The cases are not the same; so far from that, they are, it may almost be said, precisely opposite in

character. The materials to be operated upon, if we may be allowed the expression, are vastly different in their characteristics from those upon which the tradesmen or manufacturers exert their skill. While a regular uniformity of material assists the manufacturer, a puzzling diversity is the plague, so to call it, of the farmer. Again, with the manufacturer given a certain amount of material to work upon, and buildings under which to work and machinery to work with, a certain amount of result can be safely predicated. Is it so with the farmer? A thousand-and-one things come up, and come up so unexpectedly, that no provision can be made for them—all tending to throw around his operations a vast deal of uncertainty. If this is true in the case of soils and the crops which they bear, how much more remarkable is the difference between the characteristics of his live stock and the materials upon which the tradesman or manufacturer operates. These living organizations bring with them a vast variety of peculiar circumstances, sometimes puzzling in the extreme; so that in place of one system being capable of being rigidly applied to all, the actual condition of true practice is that nearly every individual requires a specially individual treatment. The general feature of the manufacturing system is the precision with which all its details can be carried out, each one independent of the other, although all connected with each other; so that the principle of subdivision of labour can be applied—with what marvellous results let our great branches of manufactures say. This can never be applied to farming. It certainly does seem a very fine thing to be able to realize, that our farming shall be carried on

\* The new farmer we should hope will soon do better by them than turn his hunters out.

with all the exactitude and certainty of results which characterise a manufacturer—so that an order for so much produce or so much stock shall be as punctually attended to as an order for so much yarn or woollen cloth. Our notion is, that the fitness of things prevents this being realized, and further holding that, as farming is in its very nature a dignified and a noble pursuit, we believe that we take from the dignity and lower the nobility, in attempting to bring it within the same class of operation under which our trades and manufactures are placed. Farming is not mechanical, it is scientific.

If the attempt which for some time back in some districts has been made, and is still being made, to introduce a system of "unions"—holding the opinions I do, as stated in the preceding "note," I do not say here *trade unions*—into agriculture is successful, I wonder whether all the ramifications of operation of the unions out of agriculture will be adopted in agriculture; and, if so, how they will operate. What is to be the model upon which "farming unions" are to be constructed? as we suppose the term must be. Are the legitimate only, or the illegitimate and legitimate objects conjointly of trades' unions to be applied to farming unions? Whether the one principle or the other be adopted, one grand element of success possessed by trades' unions generally will be thoroughly wanting in unions in the country, that is concentration. I say an element of success, not that I wish any success to the cause, but it is an element of success where success is wished for; and the want of it, according to my notion, will be one of the causes, if not the cause, why the principle of a union will not be carried out in practice among the agriculturists, or, as I prefer to say, farm labourers. The powerful influence which the leaders of trades' unions bring to bear upon workmen can only be brought to bear with its full effect, and only in practice brought to bear, where the workmen can be dealt with *en masse*. Isolated efforts upon isolated bodies of men would result in none of the great movements which we find to take place in towns and crowded cities, and which absorb and carry along with them the vast numbers, which have such a wonderful influence upon the trades and callings there carried on. We have in our agricultural districts no aggregation of individuals who can be got at by the "arch-agitators" or the "philanthropic men"—the reader can choose which of these designations he thinks most correct—who inaugurate and carry on those societies which, if they do not tend to raise wages, help at all events the men who make them to spend them in supporting these societies, and to carry on the wars which they wage from time to time against capital. For whatever may be the ostensible object of trade unions, and however it may please certain politicians—for the sake of the coming votes of multitudes of men under the Reform Act passed last year—to say to the contrary, I do not hesitate to say that their primary object is to raise up and perpetuate a state of matters antagonistic to the interests of capital. Poll throughout the kingdom the thousands of workmen, and if they give you an honest reply, and you state as honestly what that reply is, I know to a certainty that that reply will indicate that in the minds of the vast majority there is a belief that "capital" is a something or other which exercises a baneful influence upon *their* interests; an antagonist with which they must wage a ceaseless and determined warfare; a thing, in short, which, to use the words of Gradgrind, in "Hard Times," must "be put down." Get rid of this, and trades' unions would have nothing to fight for. If you doubt this, read the Reports of the Trades Union Commission; and if you doubt the facts—and they are facts—which these Reports detail, then go if you like to the "pot-house parliament" of the men themselves, and, if you can—for admission will have to be got under false

pretences—to their union meetings; sit with workmen at their firesides, hear their talk at their work or in their walks; read their own special organs; and then, if you do not believe what I have said above, you will believe it then. But the reader may ask, "What is this very Crochetty Farmer about now?—what has he to do, and why is he making me have to do, with trades' unions? I am not a tradesman! I am a jolly farmer, I am." True, oh! my bucolic buffer! true, you are; and for a jolly farmer I have an esteem as large as his bulk in popular mind is supposed to be; but you have, or will, I fear, very shortly have to do with this same question of trades' unions, or the name, as applied to agriculture—which is not a trade, but something far higher and nobler than that—is a great misnomer. The "Philistines be upon thee, Sampson!" An inroad has been already made upon your quiet domains. M.P.'s, or "empties," or "empies" (see a former "note" for the derivation of this latter word) are giving note, if they have not already given it—and this I know—that it would in their estimation be by no means a bad thing if the "darkness of agricultural districts"—this by the way is a very favourite phrase with some—were enlightened by some flashes of the "new lights" of towns, and the thick air made more wholesome by a mixture with it of some of the "sweet things" of the cities—even if trades' unions and their accompanying "ratteningings" were to be of those. So you see, my friend, what things are in store for you, although "rattening" may sound to you as if it was something like a farming process, which by the way it is not. If another Potter should arise amongst farming men, farewell to the quietness of your villages! "agitated" in the strictest sense of the term they will soon be; and if another Broadhead should get amongst you with *his* enlightened views, then I fear that rattening and something worse will somewhat disturb the tranquillity of your "Sweet Auburn, loveliest village of the plain." But then we live in stirring times, and it is but fitting that the apathy of benighted agriculturists should be moved, and the "light of other days" be let into their darkened minds. Only be it understood that I do not say this. Crochetty as I am, I am not quite so crochetty as to say this. Only, it has been said, or something very like, by men who are supposed to be, at least they are called, "leading men," and of whom I do not know whether I say a complimentary thing or not when I say that they are of the town, which men have made, and have very little sympathy with, because they are in ignorance of, the true wants, feelings, and interests of the country. I am, by the way, so desperately crochetty as to say, that if the above are leading men, they will not lead me, or drive me either for the matter of that, into a belief in the opinion above-named or alluded to. But some of my readers may say, Well, suppose trades' unions are introduced amongst farm labourers, what then have they not a right to form theirs if they please? If any reader does say so; if he turns to the first sentence or two of this present note, he will find that I there say something of the legitimate and illegitimate objects of unions, clearly implying that I believe there are legitimate objects—which, as the old song says, "nobody can deny, deny;" at least if he does not deny it, he is not the sensible fellow that you are, my good reader, and not to put too fine a point upon it, or to put a very fine one, just as you like—as I am. No one can dispute that a man, or any number of men, has and have the right to do all he can to "better his condition," as it is called; which bettering is mainly conceived to lie in the raising of his wages or getting as much as possible for his work—I will not here say for the least work he can give. Nor do I here say aught of the wretched inversion of the truth of real life involved in this "bettering of his condition," as if all that

was to be desired in life was the making of money, or the getting of higher wages. Of this in some other "note" I may have something to say. Meanwhile we need not dispute the right of any man to do for himself what he thinks to be right. Only this—it is a large and widely meaning word as here put—only that in the exercise of his right, he does wrong to others. How comes it then, is he right still? Surely no, a thousand times no! the very right he claims for himself to do what he thinks right, compels him, or should compel him, to grant the exercise of a similar right to his neighbour—even if his neighbour thinks right to follow quite another course from that of his own. Yet I venture to say that the main principle—the very heart and kernel, if I may say so—of trades' unions, as unions, is the very opposite of this. What the union says to its members is—not what the right *is*, but what we *say it is*—we, the head men; we, the council of your body. Hence comes it that a union man is no free agent; he dare not do as he thinks right; indeed, he sells the very right to think, by the act of becoming a member of the union. Am I wrong in saying all this? Am I so very crotchety in writing thus so plainly? Verily, I think here of the frequent words of an author—by no means likely to be read in these days of sensa-

tional literature—a literature of which, by the way, it may be said that it goes upon the supposition that the only sensation we can have must be had of the "devilish." "The plainest words," so says my reader, "are the most profitable oratory in the weightier matters." And whether I may be set down once more as crotchety I care not; but I do say that this "matter," of which in this note I have said somewhat, is a weighty one, concerning closely all interested in the true progress of this country; but which progress is very likely to be—nay, already is—greatly damaged by the operation of such societies as we have alluded to. A bad day for the future of farming will it be, in my poor opinion, when the union principle is at work amongst those whose labour in field and fold help to carry it on. Bad enough as their condition may be now, according to some, but of which much can be said on both sides, it will be much worse when the system at present demoralizing our town workers and injuring their best prospects is at work amongst them. What that system *is*—not what by its friends it is said to be—I hope in another note to show. That *we* will be worth reading, not for what I may say in it, but what I shall give of the sayings of others; who these "others" are the "note" in due time will show.

## THE REARING AND GRAZING OF YOUNG CATTLE.

It is a less difficult task to rear and promote the progress of calves than of young cattle. There is a more regular and systematic care observed in the rearing and management of calves; but when they are supposed to be able to take care of themselves, this vigilance is too often relaxed. Hence great danger and loss frequently occur in the herd. The true aim in cattle-breeding should be, to keep the animals always thriving till, as in the case of steers, they are disposed of to the grazier, to be fattened for the butcher, or, in the case of heifers, till they are old enough to be set apart for breeding purposes. It is their management up to this period, in each case, that I propose to treat of in this paper.

I take the young cattle to be now twelve months old, having been properly reared, and ready for the spring grazing. In this state they are healthy, and under ordinary care and judgment may be kept progressing, with but few exceptions. For this purpose every suitable provision the farm can provide should be appropriated to their service. The most desirable pastures for their use, and upon which they will thrive most satisfactorily, are produced upon what is generally termed "second-rate grass-land." Their unsettled or unestablished constitutions cannot abide rich pastures with safety. Rich pasturage ought to be devoted to fattening stock: lean or young stock is totally unfitted for such highly nutritious, fattening food. It would prove too strong, too rich and fermenting, for their young or weak constitutions. Hence scouring, followed by weakness and fever, speedily reduce the animal to a living skeleton, from which state it is almost impossible to restore it. On this account it is that rich lands and rich pasturage must be denied to young and weak cattle.

It is by no means undesirable to place or graze these young cattle upon poor lands or inferior pasturage, because these pastures can be supplemented, and the stock aided, by supplies of artificial foods, in such proportions as the judgment of the breeder deems necessary—in fact, this course of procedure, in promoting the safe and satisfactory progress of the young cattle, will bear a favourable comparison with any method that can be pointed out.

The whole is capable of a ready and precise regulation. The pasturage will in no case be too rich and strong; and its inferiority in nutritive value must be made up to the young cattle by rations of cake or other artificial food, and in proportion to their apparent requirements. In this way the young stock will be constantly progressing, and the inferior land will be benefited by these additional aids being expended upon it.

The best natural course of grazing young stock is to depasture them upon the lands of the farm which are most healthy—not too rich, not too poor (one is as bad as the other), but the sweetest and kindest-growing pasture the farm will afford, the fields to be supplied with plenty of pure and wholesome water. These lands ought to be rested, or "laid in," for several weeks prior to stocking them. The grass, being thus slowly grown, is old enough to lose much of its purgative character, and will be digested by these young animals without danger. Should, however, the season prove warm and genial, and the pastures grow luxuriantly, the stock should be taken into the foldyards at night, there to be supplied with plenty of dry food—i. e., hay, straw, bean or pea-husk. This will prevent any injury from laxity of the bowels and the like. It is better to use the foldyard than to supply them in the field. They eat more of the dry food, and it is retained upon the stomach longer than by intermingling with grass, of which they will partake whilst in the field.

It is often very desirable to change the young cattle from pasture to pasture occasionally, always bearing in mind to let well alone; but generally some one or more of the young herd does not progress sufficiently fast, then by all means try another pasture, or other food. This change is almost imperatively necessary if the pastures are small; all young animals thrive best upon a good range of natural herbage or pasturage; change of food, change of climate i. e., from hill to valley, from valley to hill is highly conducive to healthy progress, far better than incurring a farrier's bill. It is superfluous to say that in untoward seasons other resources must be provided; in dry summers, with burnt up pastures like the

past, the fold yard and straw had to be the *dernier resort*. In wet summers, with washy succulent pasturage, hay or other dry food must be supplied, or loss from scouring is inevitable. Never forget the old adage, which I again repeat, "The eye of the master grazes the ox." As the summer advances provision will require to be made for the autumn grazing; this should be in the reserve of the meadow land eddishes, or in "laid in" seeds. Clover eddishes are too strong and succulent; old pasture land, if "laid in" for a few weeks, is a good provision. It is in these matters that every farmer must use his best judgment, none but general directions can be suggested in such cases; the great aim to be kept in mind is to promote continuous progress in every animal.

The summer grazing being over we now come to the winter management. To tide over the long dreary winters of this country, we take it that ample provision has been made upon every farm in proportion to the number of young cattle to be wintered, otherwise they are sold off to be wintered by other graziers. The provision thus made will consist of the following kinds of food, *i. e.*: Hay, straw (in variety), turnips, mangolds, cabbages (in variety), potatoes. The management of the young cattle will consist of the best appropriation of this provision. It may be right to observe that however ample the provision of food may be made available, it is most important that equally ample provision of warmth and shelter should be provided. Young cattle must be kept warm and dry or their food is of little real service to them. We must then stipulate for warm shelters and dry lairage; this secured, we take them from their pastures to the fold yards, hovels, and byres. Their

first cheap supply of food—winter food—should consist of turnips, aliced, or pulped, mixed with chaff, cut from one-fourth good hay and three-fourths good straw of oats, barley, or peas; this to be supplied in moderate quantity according as it is consumed, all being kept cleanly and sweet, *i. e.*, stalls, cribs, chaff-bins, scuttles, skeps, and floors. As the winter advances and the young cattle progress, cake, corn, or other artificial food should be supplied; for although they will do well and improve at first, their condition will wane in a very few weeks unless a change to more nutritious food is resorted to; indeed, several changes should be made in their rations during the winter, *i. e.*, upon thrashing days, and after. The pulse and chaff will make a very desirable change for a few days from their cut chaff, and in February or the early spring mangolds may be substituted for turnips; potatoes, too, may be then given in moderation, and even cabbage in a season of scarcity. Water should be sparingly supplied; the lairage likewise, but just enough for the cleanliness. In this way, in ordinary seasons, young cattle may be advantageously wintered. In a season like the present every one is at his wits end: no hay, no roots, and but little straw; resort must be had to every available supply, corn, cake, cabbage, potatoes, straw and hay, brewer's grains, malt-comb, &c., &c. The task will be a hard one, and very expensive; in ordinary seasons young stock may be economically wintered in the way pointed out. The grazing during the following summer will be the same as the past; they will then be two-and-a-half years old: the steers should then be assigned to those who fatten them, and the heifers be appropriated to breeding purposes.

## THE LEICESTER IMPLEMENT SHOW.

### NOTES UPON NOVELTIES.

In the first of the present series of papers we very briefly alluded to the extended use of the cultivator, or grubber, in the modern practice of farming; an implement which occupied a very marked position at the Leicester Show, and this mainly arising from the trials to which they were subjected. And although no novelties, in the strictest acceptance of the term, were exhibited in this department, still the implement show, and the trials to which they were subjected, presented some points of thought, which carried with them suggestions of such practical value, that we may be again here permitted to advert to them: all the more that these papers are not intended to concern themselves merely with novelties as novelties, but have for aim the much more extended, and shall we say, the much more valuable scope, of being suggestive of what will likely be the future, as deduced from past experience, in the various departments of agriculture.

The introduction of the grubber or cultivator as an implement for the preparation of the soil for the reception of seed was coincident with, or we should perhaps be more correct if we said followed upon, the modern practice of land-drainage. For it is to be noted that the implement is not intended for—at least it does not give out its best powers—in wet soils; its use, indeed, on soils of this character would bring about the cultivation of soil which it is certainly not the aim of the farmer to secure; and that, extended as is now the use of this implement, it is certainly a very suggestive circumstance that not one of our agricultural societies have taken up the investigation of its principles of operation, of the work which it has to do, and to deduce therefrom the

best form to give to its working parts. And yet it is by no means an exaggerated view of the matter to take—rather, indeed, is it simply the common-sense practical one—that its economical working does depend, not merely upon the form of the tines, but upon the relation which these bear to the framing which carries them. This was remarkably well exemplified in the trials of the grubbers which were worked by steam power at Leicester. We do not here, by naming names, wish to make invidious distinction; but those who, like ourselves were present throughout the whole of the trials, will know to what special implements we refer when we say that while one did its work well, keeping to its work steadily, another did not, and was repeatedly thrown out. Now this gave rise at once to the question, what was the cause? and there could be no doubt that while the circumstances of working were equal, and the results unequal, it must have been owing to some peculiarity in the implements; as, indeed, it was. And yet we venture to say, that if the thought did strike the officials of the Society that it might serve some practical purpose to investigate these peculiar circumstances, no public expression of the thought was given; nor has it, so far as we are aware of, been alluded to in any of the *Journals* of the Society. There must be a difference between the working of one implement with a properly designed grubber, and one improperly designed, as we know there is a difference between the ability of one man to resist a pressure which tends to pull him forwards, and who is standing full and firm upon the extended soles of his feet, and of another who is standing only on tip-toe.

The illustration we have used before we may use again, for it has a very close bearing indeed upon the working of the implement now under consideration. And while on this we may allude to a novelty, not certainly in the way of a new implement, but rather referring to a new use of an old one, which was promulgated at Leicester, and to which, by the way, we have already made brief allusion, namely, that the use of the grubber actually reduces the fertility of the soil. Now, as this has been objected to by practical men, it is one of the points connected with the implement to which the attention of the Society should be directed, when they take up the whole question as to what constitutes the best form in which it should be used as an implement for the preparation of the soil for seed.

And this brings us to note a point which concerns closely those who use the grubbers, and which, strange to say, was commonly, or perhaps we should say apparently, overlooked by the judges themselves in the trial-field allotted to the horse-dragged implements of this class. The point refers to the incapability of certain forms of grubbers or cultivators—we shall see presently that it is a pity that these two names should be so generally considered as synonymous—to do the hard work of breaking-up the soil in preparing it for a seed-bed. Now, it is an undisputed axiom in mechanical operations that if you wish the best results you must use the machine or implement calculated to do the work in the best way—in other words, you must not use a machine to break stones which was designed or is only calculated to break nuts. The illustration is apt enough, as it goes to the root of the matter at once, and points precisely to what is often done in the practice of farming, and was done, by the way, in the trial-field at Leicester, where they used an implement to break up land for cultivation, which is only capable of cleaning or stirring the upper surface of soil already cultivated—in other words, who overlook the fact that there is a distinction between the work which a grubber does and that which a cultivator does. The reader will see here why we stated that it is a pity that these names are considered to be synonymous. That they are so by the officials of the society is clear enough, for we saw some implements set to do work for which they were not at all designed, and when failure resulted—as any one who knows what this class of implements is, know it would inevitably result—the failure was laid to the blame of the maker rather than to the fact that it was set to do work which it was not designed nor was capable of doing. Such considerations as these are by no means without a practical value, if they serve no other purpose than the one to which at the conclusion of our first paper we made pointed allusion—namely, bring about that reform in the mode of arranging the trials and in reporting their results, which by all who have paid attention to the subject is deemed to be pregnant with such important results to the welfare of the Society. Before dismissing this department of the Leicester Show, let us express the hope that the next show will display one novelty which should have been displayed in nearly all their implements at Leicester—namely, the use of steel for the parts subjected to the greatest strain. We certainly were surprised at first, in examining some of the implements, that not only was this material not used, but that the old material was by no means of the best: indeed, in the fractured tire we saw a specimen of metal which was as bad as it could be—no wonder that it was fractured. Some of our implement-makers should take a lesson from the practice of some other of their brethren, who keep themselves thoroughly alive to all improvements in the manufacture of materials, and the modes of using them to the best advantage. Some of the exhibitors might never have heard of the vast improvement in many branches of the

manufactures connected with constructive materials, if one may judge from what one sees in the machinery or implements many exhibit. Let us in justice, however, to the great body of exhibitors, say that such men are very numerous, or, if numerous, have not very extended connections. The reproach as named does not, happily, come within the range of our best-known men in the trade.

An entirely new class of mechanical appliances has been added of late years to those which aid the labour of the farm, namely, that connected with the housing of the crops. It was our privilege, nearly twenty years ago, to present the readers of this Journal with a series of papers which took up and discussed the philosophy of harvesting and housing the cereal produce of the farm; and in then discussing various points, we alluded to the extraordinary indifference which at that time prevailed, not only as to the best and quickest modes of housing grain, so as to place it beyond the reach of weather contingencies, but also as to the means provided for preserving its good qualities, if housed in good condition, or of getting rid of defects if the contrary was the case. And we then took occasion to point out how much time would be saved, and labour economized, it, in place of simply relying upon manual labour to lift the sheaves, and place them on the stack, mechanical appliances were introduced. At the time we wrote, the yards of our agricultural shows displayed no appliances with these important objects in view. This could not be said of the yard of the Leicester show, where at many stands could be seen appliances with varying details calculated to save time and labour, and therefore money, in the important labours of the stack-yard, where the realization of the labour of the farming year is to be met with. To Mr. Hayes, of Elton, if we mistake not, belongs the honour of bringing out the first appliance of this kind; and this was exhibited at Leicester. Since the date of this patent others have succeeded him in this department of agricultural engineering; and the latest of those who have done so much to place it upon a basis of efficiency, is the house of Messrs. Amies and Barford, who exhibited at Leicester an apparatus, which however promises aid in another department of labour, namely, the making of hay-stacks. The mechanical arrangements of this apparatus are very complete, the great object had in view by the inventors being the doing away wherever possible with the necessity for employing manual labour, by the substitution of mechanical arrangements. We believe the apparatus will take a useful place in farm mechanism.

In close connection with this department, a very useful appliance was exhibited at the stall of the Messrs. Garrett, of Saxmundham, which, although it can scarcely be called a novelty, as it has been before exhibited, is worthy of notice, as suggestive of what can be done in a department which has scarcely yet begun to be noticed by our farm mechanics—this appliance was a rick ventilator. It has all the merits of being simple, possessing no movable, and therefore no complicated parts. It is simply a tube with a perforated end, which end is placed at or near the centre of the stack, and from which a tube leads horizontally outwards like a chimney, and, like some of our chimneys, furnished with a cap, or cowl. This appliance is said to act very efficiently in removing heated air from the interior of the stack; a result which would, however, be greatly aided by some means of establishing a current from the bottom of the stack towards the perforated end of the tube.

As above stated, we believe that there is much yet to be done in the economy of the stack-yard before we can say that its management is on a level with other departments of the farmery. The stall of the Messrs. M'Neill:



Liverpool, at which were exhibited models of various buildings, sheds, and the like, intended to illustrate the use of galvanized iron in erecting farm buildings, and to the thoughtful observer a suggestion of what might yet be done in the way of having our stacks under cover. In one or two instances only—markedly that at the farm of Luton Hoo, the estate of Mr. Gerald Leigh—

in this country, have structures of this kind been erected; but wherever they have been, the advantages have been so great that we believe when more attention is given to the subject no well-designed farmery shall be erected without a covered rick-yard or shed, for housing corn under, forming part of it. In a climate like ours such a structure is imperatively demanded.

## THE PREPARATION OF LAND FOR ROOTS.

The successful growth of root-crops is amongst the most critical and at the same time important departments of agriculture. In hot and dry seasons such as the present, success becomes of increased importance, because of the many failures or partial failures which exist. No system of procedure can be relied upon as being invariably successful; but it is by no means difficult to determine where success can be most frequently relied upon. The important position which the root-crops occupy in the general system of farm-management testify to the value of their successful growth. An entire failure of the root-crop leaves its mark upon the farm for some years; and the cost of purchasing food to replace the loss is a heavy expense, and especially if the season happens to be generally unfavourable for their growth. Success in a bad season becomes of increased value; for, whilst in a productive year a supply of roots can be obtained at a moderate cost, if there has been frequent failure in crop, a supply can scarcely be obtained at any price.

On an occasion such as the present, the attention is naturally directed to the circumstances which especially influence a result of such wide-spread importance. In the preparation of land for roots we observe some striking variations in the course of procedure; and the results which generally arise appear to indicate their relative value. In an ordinary season, when the alternation of dry weather with occasional falls of rain is tolerably regular, the difficulties are very much reduced. He is the most successful grower of roots who secures a good crop in dry and hazardous seasons. Such cases are not uncommon; and we purpose noticing some of their peculiarities of management, and thus we may be able to point out the essentials for such success.

The condition of the soil at the time of sowing is, beyond doubt, most important in its influence upon the success of the crop. The cultivator of the soil will find in the preparation of the land for the reception of the seed his most laborious duties, and those which demand his greatest judgment and care. This preparation will of necessity vary according to the character of the soil; but the result to be obtained is a clean, deep, and friable; seed-bed, favourable for the growth of the seed. As to the clean and friable condition of the soil for such a purpose, there is no difference of opinion; but as regards the moisture of the soil, there is a remarkable difference of opinion and practice. The policy of some farmers of loamy soils is to get the ground as dry as possible, whilst others, under very similar circumstances, endeavour to attain the opposite result, and are most cautious to keep the soil as moist as they can.

When the intention is to sow in a dry seed-bed, there is no hesitation about carrying out the final tillages, irrespective of the drying influence of sun and air. The cultivation is, in such a case, carried on up to the time of sowing the seed; and if the soil be then thoroughly dry, there is the greater feeling of satisfaction in seeing the seed entrusted to its care. The seed, being so deposited, naturally lies in an unaltered condition until rain falls,

when it is suddenly aroused into action. The warmth of the soil encourages a rapid growth as soon as the rain has fallen; and as the rains at this season are tolerably effective, or else scarcely enough to influence the seed, no fears are entertained of the seed making a false start. The cultivators who adopt this rule have little cause for anxiety as to the seed starting well and satisfactorily, when it does move. It often happens that such seed will lie in the ground for a considerable length of time, simply for want of rain; but the grower congratulates himself that it is safer to wait patiently for rain than for the seed to spring up, and the young plants to become food for the turnip-fly. It must be acknowledged that in the majority of cases this delay is no loss of time. If we compare the growth of a crop which has come up rapidly, and broken quickly into the rough leaf, with another crop which has made its first appearance in the face of settled dry weather, simply to become preyed upon by the turnip-fly, we shall generally observe that the latter, even if it survives the fly, cannot make any material progress until rain falls, and that, in consequence of the punishment it has had, is soon passed by the other crop.

One of the essentials for success in the growth of a crop of roots is to secure a good start, and avoid anything like a check in the growth. The results which attend this practice of sowing in a dry seed-bed are very generally satisfactory. Extended experience appears rather to prove that it is a safe policy, and generally most successful in its results. The basis upon which it rests is, that the soil is so dry that the seed cannot grow until there has been a good fall of rain, which, coming into a dry and warm soil, makes the seed a hotbed, from which it grows with vigour. The soil, having been well moistened, continues the growth of the seed, in spite of any obstacle, until the plant is well out in rough leaf, and the roots firmly established in the soil.

The opposite policy has many supporters equally zealous in its favour. In this case, the endeavour of the cultivator is to prevent the soil getting dry. His arrangements are all carried out so as to secure this result. The tillage operations are, with this object, carried out some weeks before the time for sowing the seed. The land, being clean and in good condition, is not again ploughed; but should necessity compel the soil to be lightened, the most that can be done is to stir the land with a cultivator of some kind. The usual endeavour is to give the land at least two weeks, after all tillage is finished, so that the natural moisture of the land may arise up into the cultivated soil. When the seed is sown, it is put in rather deeper than usual, and the land rolled down as soon as possible afterwards.

The seed which has been sown under such circumstances commences its growth without delay, as there is abundant moisture to promote the germination of the seed. Assisted by the moist condition of the soil, the roots settle into the soil; and the plant soon shows itself above the soil, to commence the battle of life. So long as the moisture of the soil is sufficient for the purposes of

a vigorous growth, the heat of the sun acts as a powerful stimulant. If the moisture be insufficient, then the heat of the sun would have an injurious tendency; but this is of rare occurrence under the system we are now noticing. This rapid growth makes the crop independent of the turnip-fly; and it is thus able to burst into the rough leaf uninjured in the contest for life. The policy thus adopted secures for the seed a sufficiency of moisture in the soil to commence growth without delay, and to carry forward without interruption the development of the crop through this the most critical period of its existence. Here also a favourable start has been secured, and the stability of the crop ensured, by a course of procedure directly opposite to the system we first referred to. Each has its separate advocates; and it is probable that there are conditions of soil upon which each may be justly preferred.

The advocates for either or both of these systems are very much in the minority of those who adopt a system intermediate between those already named. In this case,

however, experience appears rather to show that the middle way is the path of danger. When the cultivation is carried out so as to secure only a moderate degree of moisture in the soil, the seed is of necessity placed in danger. The growth commences; the plant shows itself above the ground; and all goes well, provided it happens to come in time to help the plant before it wants of moisture in the soil has injured its growth. However, a continuation of hot, sunny weather has to be endured, and the demands upon the soil for moisture cannot be responded to, then the plant receives a check, and if it be severe, it dies for want of moisture. In addition to the heat of the sun, the fly is busy upon its leaves, the end is more rapid, and the loss of the crop more certain.

The condition of the soil as regards moisture at the time of sowing the seed is far more important than is generally acknowledged; and its neglect is a frequent cause of failure in the growth of root-crops.

## STEAM CULTIVATION.

A meeting of the members of the Hexham Farmers' Club was held for the purpose of hearing a paper by Mr. Greig, on "Steam Cultivation." There was a large attendance. Mr. Charles G. Grey, presided. In the absence of Mr. Greig, through indisposition, the paper was read by Mr. Reginald Wigram, under-manager of Messrs. Fowler's works.

The paper is as follows:—

It is not my intention in this paper to discuss the mechanical construction of steam-ploughing implements. I propose rather to consider the practical application of such implements to the efficient cultivation of the soil; and for the sake of convenience I will divide the subject into six heads—Firstly, I propose to illustrate steam power as a means of draught compared with that of horses; secondly, I propose to consider the present condition of steam cultivation; thirdly, the difficulties connected with its introduction into new districts; fourthly, steam cultivation as it should be; fifthly, the state of the soil, and the advantages to be gained by the adoption of steam cultivation; and sixthly, various alterations which agriculturists will require to make before the pecuniary and other advantages of steam cultivation can be fully and universally realised. Regarding the application of steam power as a pulling medium, I think there can be very little discussion. Where steam power can be conveniently applied, there is no doubt as to its being done at one-tenth the cost of horse labour. A steam-engine set in position, drawing a wire-rope, will pull at 6d. per horse power per day. If such be the fact (and I can prove it to be so by numerous cases in collieries and other places, where wire-rope is now being increasingly used as a means of conveying the requisite power), there can be no dispute as to its efficiency. With practical men it therefore resolves itself into a question of application; and that this application can be satisfactorily effected by agriculturists, of any mechanical turn of mind, there can be no doubt. The draught of a horse is about a hundredweight and a half continuously, and with steam this draught can be carried continuously for ten hours for 6d. Steam ploughing is largely a matter of pulling; and, provided the necessary pulling power be obtained, the next consideration is to arrange the conveyance of this power in such a way as shall be most suitable for the use of the agriculturist. Regarding steam ploughing as it is: Its present position is somewhat peculiar. It is an admitted fact that on steam-cultivated land, the crops are very materially increased, where judicious management has obtained; and those people who devote a reasonable amount of thought and energy to the work are succeeding and making plenty of money. On the other hand, numerous farmers, possessing machines of their own, are not so successful, but this, be it observed, is owing entirely to the management. Steam power is not at present in the advanced position it should occupy—partly owing to the want of implements to do the light work.

Heavy work can be done by it under all circumstances, much better and cheaper than by horse power. One of the great advantages of steam ploughing is that, in all cases, the draught is thereby materially improved; and it is a noteworthy fact, that in several instances where steam-plough proprietors have experienced great difficulty in getting work from the farmers during the first year, the second year they have had more applications than they could well supply. It is rare that a person having a field steam-cultivated one season will not have three or four times as much land done the season after. From this we may infer that, as a rule, the farmer is quite satisfied with the character of the work. It is most important that the agriculturist, in the selection of a machine, should purchase that which is best adapted to the special circumstances and condition of his farm. Steam cultivating apparatus is unlike many other kinds of machinery, in that it is required to deal with all varieties of uneven surfaces and unequal draught. This is a point which is of the utmost importance to consider, and intending buyers should study this matter well before making a purchase. With respect to certain difficulties connected with the introduction of steam ploughing apparatus into a new district, the first of these is the alleged want of capital. This difficulty seems extraordinary, considering that we have such an abundance of money lying useless in the country, or invested in undertakings which only pay from 2 to 4 per cent.; and, indeed, it seems incredible to a commercial mind that such a state of things could exist, and, if existing, that it should be allowed to continue. Here is a business which is paying at least 25 per cent. to those who have engaged their money and energy in it, and surely such facts only require to be known to create a much more extensive investment of money in steam cultivating machines. Another phase of the same difficulty is to satisfy the mind of the agriculturist that the machinery is such a safe investment, and that it will continue to pay as it is now doing. In reference to this, I would observe that, for the success of all speculations, time is absolutely necessary, but from the comparatively slow returns of agriculture, a yet longer period of time is required. The next point is the great want of roads and larger fields in the country. This is a difficulty which, so soon as the agriculturist fully sees the practical advantages of steam cultivation, he will see his very best endeavours to remedy. It is, however, important that the landlord should see these at the same time, and especially that he will be greatly benefited by the proposed alterations. For the working of machinery, not applied to the cultivation of the soil, it is necessary, first of all, that a position should be made for it; and, as a rule, it is either fixed down as a stationary engine or a road is made for it to run on. Now, whether steam power be applied, or horse power, on a highly-cultivated farm, it is absolutely essential, for the proper conducting of such a farm, that the fields should be large, and

at roads should be made on which to carry the produce to the homestead. Even a halfpenny a ton would much more than pay 10 per cent. on the money expended on those roads; and those farmers who have carefully watched the change of their horses and implements from one field to another, the sowing up of headlands, and so forth, must have observed that great loss of time, and, consequently a heavy expense is incurred. Looking at this point, it is singular that more has not been done in improving, especially in the shape of squaring elds and road-making, on the farms of this country. The slow education of the labourer, with the view of making him capable of managing steam-ploughing machinery, has had a restraining influence; but it is astonishing to observe how soon such a man gets thoroughly interested, when once you make him thing a success. In a great many cases, in consequence of inefficient management, this difficulty has continued for some time; while, on the other hand, when good management has been the rule, the ignorance, prejudice, and obstinacy of the labourer have rapidly yielded to practical skill and persevering energy. Before the cost of steam cultivation is reduced to the minimum of economy, the fields will require to be enlarged, and good roads must be constructed; but even, under existing circumstances, if the proper class of machinery be procured, and well managed and worked, the result will be more or less advantageous. Hitherto, steam-ploughs have only been used for doing a few of the heavy operations. Now, this is an entirely mistaken policy. Let it be borne in mind that each horse-foot-mark which is put upon the land has to be taken out again; the land having, first of all, been trodden down in a very uneven way, part of it being soft and part of it hard. It is exceedingly desirable, with a view to economy, that the soil during all cultivating operations should be entirely free from animal foot-prints. As an illustration of this point, you may have seen a market gardener having his harrows pulled by men, rather than have animals treading and hardening his ground. If the animals are kept off the ground, and the land ploughed in a proper season, one-half of the present cultivation will be quite sufficient. No clod-crushers or mechanical means of breaking the soil will be required. It is often said that deep cultivation will not do for all crops. Now, I am entirely of opinion that deep cultivation is unnecessary more than once in every rotation; but this cannot be accomplished unless every operation is done by some means which do not involve any trampling or treading. I am quite prepared to affirm that the cultivation of the land where steam-ploughing operations are thoroughly carried out will not cost more than 8s. per acre per year. In this estimate I include sowing, harrowing, and everything connected with the pulling expenses. The operations will be done at the exact time the farmer requires them, or when his land is in the most suitable state for their being done; no extra expenses will be incurred when a wet day occurs; and it will be possible to keep the farming expenses in accordance with calculations that shall have been made beforehand. The crops will be increased in quantity, and improved in quality, in consequence of the cultivation of the land being effected at the right time, and in the right condition. The state of the land where steam power has been sufficiently applied for a considerable time is worthy of thoughtful consideration. But few people are prepared to credit the change which has taken place in a piece of soil where the spade has been employed as a means of cultivation for some years. Suppose a house built on the very poorest soil in the country—surround that house with a garden. Now, observe, as soon as the garden changes its colour, it becomes easy to cultivate. This, you perhaps suggest, is owing to manure. Not entirely so. Of course it is partly owing to the manure, but the greatest advantage that the soil derives is from the roots of the plant conveying the atmospheric elements and influences down into the soil, and hence it follows that although no manure except the artificial kinds be applied, yet if vegetables be planted on it, that ground will become quite black and rich looking. If spade-husbandry has the advantages which I claim for it (and which few men will dispute), steam-cultivation has similar advantages, with this important addition, that in the well-timed operations of steam-cultivation the work is done with much more regularity, with much greater rapidity, at a lower depth, and without any treading whatever. The great point with the soil is to treat it when it is in a proper state for being operated upon, and never under any condi-

deration when it is raw or wet. By way of familiarly illustrating this remark, I may venture to observe that probably most of you have occasionally ploughed down a little snow. In doing so I have no doubt you will have seen the lines of the ploughed-down snow. If such has been the case, then I hold that turning land over, when only slightly wet, must produce the same result in a proportionate degree. The temperature of steam-ploughed or dug-land is very materially raised, and it will keep much nearer one point than other land will, on which horses have been trampling and treading, and over which they have often been going in wet weather. It is an important fact that, other things being equal, any land ploughed by steam dries much sooner than land not so cultivated. This is mainly caused by the rapid action of the implement in passing through, and also in tearing the subsoil below where ordinary ploughs had previously penetrated, so that the water can now descend into the drains. As already intimated, the depth of cultivation is a very important consideration. By deep cultivation, of course I don't mean simply turning over. I mean that the land be thoroughly loosened, and that provision be made to retain enough of the moisture and wet at the bottom, and in such a state as to allow any superfluous water which may fall to pass away. The advantages derived from such deep cultivation are, that the surface land never retains more moisture than it requires, and when dry weather comes, the spongy subsoil keeps it until the plant requires it, thus entirely preventing two injurious extremes. The subject of dealing with the land may be further illustrated by a passing reference to one of the common laws of health. A man cannot continually enjoy the best health unless he pays some attention to the temperature of the atmosphere by which he is surrounded, and in which he "lives, and moves, and has his being," and unless, by lighter and heavier clothing, he endeavours to secure something like an equality of temperature in the heat of summer and the cold of winter. This point is of much more importance in its bearing on the growth of agricultural produce than most farmers imagine. Plants require as even a temperature as it is possible to secure, and the only means of effecting this are deep cultivation and thorough drainage. With respect to manuring from the atmosphere, I would observe further, that most persons are not aware that soils are able to imbibe a vast amount of manure from the atmosphere if put in a proper condition. They will absorb from the air ammonia, and the atmosphere itself gives to the land every year, in the form of rain, a very large quantity of this substance. This at once raises the subject of draining; for if land is clogged up with water to the surface it is unable to benefit by the valuable manures which descend in the rain, which instead of soaking through the ground, is compelled to run off the surface without giving half its manuring value to the crops. Again, undrained land is unable to extract the manures from the air, for this process is only carried on by reason of its porosity; and, therefore, if the water cannot pass readily away, the ground remains full, the air is unable to pass among it, and thus it is unable to derive any benefit from it. This power possessed by soil of manuring itself from the air constitutes the real value of "fallowing," and is greatly assisted by deep cultivation. Another point is necessary to be studied, and that is, never to touch the land except when it is in the best state for the work being effected. If ploughed wet, the temperature of the land will be lowered for the entire season. Living in a country surrounded and confined by the sea, we cannot possibly enlarge the actual area of the land; but the value of the land we do possess may be very materially increased, if not absolutely doubled, by the thorough pulverizing of the soil to double the depth actually reached by the ordinary horse-plough. A great deal of the finest land in this country is never ploughed more than six inches deep, and each time it receives 350,000 footmarks per acre. It has been ploughed for generations to the same depth; and, of course, the bottom immediately below that must be a substance resembling asphalt rather than soil. If the atmosphere could act upon it, it would loosen it; but by the means of the ordinary ploughshare riding annually over it, and horses treading down over the very same surface, it becomes almost as hard and impermeable as asphalt. With such cultivation, crops must be necessarily limited; and they cannot grow above a certain height, from the fact that they cannot root themselves beyond a certain depth. I am of opinion that the land should be loosened at least two feet from the top, and before long we

shall see that such will be the case. Light land will be equally as much benefited as heavy, from the fact that it will retain its moisture even through dry weather. Heavy land will become the best producing land, and much the cheapest to cultivate, because, in the case of heavy land, no cleaning will be necessary. I am rather doubtful that light land will always grow weeds, and therefore require more operations to effect the cultivation. The wear-and-tear of implements and machinery on light land will be much greater than on heavy. The great point in profitable agriculture is, if possible, to discover a system by which the farmer shall pay only the nett cost or value of the work actually done. It is hardly necessary to remark that such is not generally the case; and any farmer, without studying his books, may find that his estimated expenses are nearer the ultimate sum, after having been multiplied by two. Nothing requires to be more carefully watched by the farmer than his expenses. Were I to ask the shrewdest and most experienced farmer in the room to give me in detail the estimated cost of the next year's operations on each field on his farm, I venture to submit that the actual cost, when accurately reckoned up at the end of next year, would be found double the amount of his previous calculations. One obvious reason of this uncertainty would be that the horses would have been kept a whole year for doing only half-a-year's work. Two days are not unfrequently spent in ploughing when one day ought to be sufficient. In conclusion, I would remark that the more convenient and untiring agency of steam is adopted in farming operations, the greater will be the certainty of the farmer's profits—fewer horses will be required; with proper management, a saving of time will be effected; better crops will be secured; the condition of the farm labourers will be improved; and agriculture will be more enthusiastically studied as an interesting and practical art, and more successfully prosecuted as a promising and profitable business.

The CHAIRMAN was sure that they had all been very much interested by the paper which had just been read. He hoped some of the gentlemen present would state their views on the matter. He knew that the farmers on Tyneside had not had very much experience of steam ploughing. Their farms were generally on hilly ground, and of light land, and it had been considered that steam ploughing was not applicable to the district.

Mr. YOUNGER, Burradon, stated that he had a steam plough, with two engines. His farm was strong land, and he could plough six to twelve acres per day. He had done away with five horses out of sixteen.

Mr. HUGH STEPHENSON, Throckley, said that at Cirencester College the steam plough was rather old-fashioned, and not to be compared with the machines spoken of. It was a ten-horse engine, with an anchor. At the College the steam plough lost them something like £300 a year. He must, however, state the farm was, perhaps, one of the worst in the kingdom to cultivate; there was in some places only three to four inches of soil on the rock. The ground was very hilly; and some people thought it impossible to cultivate hilly land with steam ploughs, but he thought they were mistaken, as he did not think hilly ground any objection. The steam plough he alluded to had been given up. He did not condemn steam ploughs, as he did not think the ploughing at the College a fair test.

Mr. COCKBURN, Newcastle, said a gentleman at Hylton, farming about 700 acres, had got a single ten-horse engine; he had had the engine about six months, and he was now able, as a result, to do with half the number of horses. He used to have nineteen horses. Generally one-third of the horses were done away with.

Mr. GOODRICK, Dilston, said that Mr. Crow, Scremerston, who had got a steam engine, had reduced the number of his horses from thirty to sixteen or eighteen. He farmed 1,150 acres.

The CHAIRMAN said it was stated in the paper that the whole of the operations could be done for 8s. per acre per year. He wished to know how the amount was arrived at?

Mr. COCKBURN said that a few days ago a set of Messrs. Fowler's tackle had been commenced with on a farm, and during two days 21 acres were ploughed to a depth of 10 to 12 inches. There were two engines. The cost of coals for the two days was £1 3s.; leading water (the water had to be led a mile and a half or two miles up a very heavy bank), £1; engineer 25s. per week, second engineer 21s. per week, ploughman 20s. per week, two boys at 1s. 6d. each. He considered that out of 21 acres, leaving headlands out, there were 18 acres

ploughed to the depth of 10 to 12 inches, at a cost of £3 15s. Mr. Younger would bear him out. He estimated they could plough eight acres per day. They might cultivate 15 to 20 acres at one-half the cost of the ploughing, and if they took the harrowing at the same proportion, that would bring it up to 8s. per acre.

Mr. STEPHENSON asked whether the £3 15s. included wear and tear of the engine, &c.?

Mr. COCKBURN said the amount included the labour, coal, leading water, and the actual expenses. They had decided to put down the fair wear and tear of the machine and engines at four per cent.

The CHAIRMAN said that was only the expense when the plough was actually on the ground, and set to work. It did not include the wages of the men when the machine was being taken from one place to another, or the idle time when the machine was not at work.

Mr. COCKBURN said the same thing applied to horses. The cost of the wear and tear upon the engines and tackle was less than the cost of upholding the horses and ploughs.

Mr. YOUNGER, in reply to a question, said he started at six in the morning to raise the steam, and commenced work at half-past seven. It took about an hour to move from one field to another.

Mr. COCKBURN said that a few days ago they put in the fires at the Acklington Station, to two of Messrs. Fowler's engines, and started out of the station in three-quarters of an hour. They moved from one field to another two fields distant, and were at work again in three-quarters of an hour.

Mr. WIGRAM said they always tried their engines to go up a short bank at a gradient of 1 in 10. No difficulty was found with an ordinary hill; in slippery weather they might get into difficulties.

The CHAIRMAN thought no one could doubt the advantage of steam-ploughing, particularly on strong land. He had not seen light land cultivated by the steam plough. There certainly was no doubt of the improvement it made in the land itself, in bringing up a depth of soil, and giving greater scope for the roots to gather nutriment. One difficulty was the great capital required. It was all very well to say what the average cost of working was. This was an enterprising age, and if steam-ploughing paid 25 per cent., why did not some people get up a company and purchase a steam plough? Would anybody contract to do all the ploughing in Anick Grange Park at 8s. per acre per annum? There was no doubt great good was done by steam-cultivation on stiff land. It was merely a question of expense. They had had little experience on Tyneside of the steam plough, and he would ask if any gentleman could tell him of a farm in the district which would pay to buy a machine for its own use?

Mr. COCKBURN: But suppose there was united action between two or three farmers, and they bought a steam plough? Some persons in the south commenced with a single set of tackle, which they let out at a certain price, and now they had had to buy four or five sets of tackle to let out.

Mr. DODS said there had been too much talking of steam ploughs decreasing the number of horses. He believed experience showed that there was far greater efficiency in the work—the work was doubly well done by the steam plough. He did not think there was any farmer between Newcastle and Haltwhistle whom it would pay to get a steam plough on his own account. If he had a steam plough to-morrow, he could not reduce the number of his horses, as he would require the full number to lead his corn, &c. If he could get the use of a steam plough at certain seasons of the year, it would be great advantage. The horses could be easier kept.

The CHAIRMAN moved a vote of thanks to Mr. Wigram. Carried unanimously.

Mr. WIGRAM briefly returned thanks. Referring to what Mr. Stephenson had stated, he said that Mr. Carey was for some time at Cirencester College, and had a good deal to do with the management of the tackle; and he was now living comfortably in the South, and had five sets of tackle, which he let out. As to having a machine for Tyneside, he stated that companies had been organised in other places; and if there was not one here, then it was the fault of the residents at Tyneside.

Mr. COCKBURN stated that a company had been formed in the county of Durham, and a set of tackle had come down.

The meeting then terminated.

## ORNITHOLOGY.

"On the 29th Sept., 1868, at Peldson, Essex, an Egyptian vulture was shot, supposed to be only the second instance of its capture in Great Britain, No. 1 having been shot in 1835."

SIR.—The Rev. F. O. Morris recently petitioned Parliament to impose a gun-tax, in order to prevent the senseless slaughter of the feathered tribe which prevails in the country, to the prejudice of agriculture. Even pheasants and woodcocks consume many wire-worms, and, as I stated in your journal, of 9th July, 1866, rooks, and common birds, in this respect follow suit without doubt, and beneficially. Curious birds, the hoopoe for example, here have a small chance of life, in these days of cheap-John gunnery; and this is to be regretted, for, if encouraged, the breeds might increase, and become a source of pleasure to ornithologists and naturalists in general—men like the late Gilbert White of Selbourne, and William Markwich of Battle, who from the year 1788 to 1793, inclusive, made a series of observations respecting birds and their habits.

Mr. Yarrell, in his History of Birds, stated, in Devonshire the system of rook-killing had proved detrimental to agriculture. It was necessary to re-import the birds. In the North of England similar events had occurred; for with the failure of rooks, crops had failed also. Recently, in Algeria, the bird known as the *martin triate* was imported from France in order to destroy a plague of locusts.

Mr. White included amongst birds of passage the following, as seen in his own neighbourhood of Selborne:—

	WHEN DUE.
Wryneck .....	March
Willow wren .....	March 23.
Swallow .....	April 13.
Martin .....	
Sand ditto .....	
Blackcap .....	
Nightingale .....	April.
Cuckoo .....	
Middle willow wren .....	
White throat .....	
Redstart .....	End of March.
Stone curlew .....	
Turtle dove .....	
Grasshopper lark .....	
Swift .....	April 27.
Reed sparrow .....	
Landrail .....	
Large willow wren .....	
Goatsucker .....	May.
Fern owl .....	
Fly catcher .....	
Ringouzel ! .....	
Redwing .....	May 12.
Fieldfare .....	
Royston crow .....	
Woodcock .....	
	Old Michaelmas.

WINTER BIRDS.—Wild swan, geese, duck, pochard, wid-geon, teal, crossbeak, crossbill, siltail, snipe, woodpigeon.

Stone curlews he described as only seen in Norfolk, Hants, Sussex, and Dorsetshire. That this bird made no nest, but laid 2 eggs on the bare ground. Nightingales, he stated, never reached Devonshire or Cornwall, and appear not to go further northward than Doncaster, or to sing later than the 1st July, if so late.

Mr. Morris has stated that they avoid the West and East coasts, but are found at York and Carlisle.

Mr. White found less woodlarks, song-thrushes, wrens, red-breasts, hedge-sparrows, yellow-hammers, skylarks, swallows, blackcaps, titlarks, blackbirds, whitethroats, goldfinches, greenfinches, reed-sparrows, and linnets, to sing after midsummer, and therefore to breed more than once, as he supposed. The flying songsters were, according to Mr. W., skylarks, tit,

and woodlarks, blackbirds, whitethroats, swallows, and wrens. The missel-thrush may be included, according to the Rev. W. T. Bree.

Mr. White and Markwich respectively gave these dates for the singing and appearance of birds in England:

	WHITE.	MARKWICH.
Redbreast sings .....	Jan. 1—12.	Jan. 3, 31(Oct. 6.)
Thrush sings .....	" 6—22.	" 15, April 4.
Skylark sings .....	" 21.	" 12, Feb. 27—sings until 13th November.
Blackbird sings .....	" 17.	Feb. 15, May 13.
Ringdove coos .....	Feb. 27—April 5.	March 2, Aug. 10.
Pheasant crows .....	Mar. 3— " 29.	March 1, May 22.
Golden wren crows ..	" 12— " 30.	April 15, May 22.
Willow wren seen ..	" 19— " 13.	Mar. 30, May 16.
Swallow appears .....	" 26— " 20.	Ap. 7, 27—last seen Nov. 16.
Martin appears .....	" 28—May 1.	April 14, May 8—last seen Dec. 8.
Sand Martin appears ..	" 21—April 2.	April 8, May 16.
Nightingale sings .....	April 1—May 1.	April 6, July 4—last seen Aug. 29.
Snipe pipes .....	" 3.	
Cuckoo heard .....	" 7— " 26.	April 15, May 3—last heard June 28
Swift appears .....	" 13— " 7.	April 28, May 19.
Large bat appears ..	" 22—June 11.	
Fern owl appears ..	May 1— " 26.	May 18, Sept. 14.
Quail calls .....	June 22—July 4.	July 23—seen Sept. 1, 18.
Swallows and martens congregate .....	July 14—Aug. 29.	Aug. 12, Sept. 8.
Swifts depart .....	" 27— " 29.	Aug. 5, 11—seen once on 3rd Sept.
Lapwings congregate ..	Aug. 15—Sept. 12.	Sept. 25, Feb. 4.
Ringouzel appears ..	Sept. 4— " 30.	
Woodlark sings .....	" 28—Oct. 24.	
Woodcock seen .....	" 29—Nov. 11.	Oct. 1, Nov. 1—last seen Ap. 13.
Swallows last seen—The house martin latest .....	Oct. 4—Nov. 5.	Nov. 16.
Redwing comes .....	" 10— " 10.	Oct. 1, Dec. 18—last seen Ap. 13.
Fieldfare comes .....	" 12— " 23.	Oct. 13, Nov. 18.
Woodpigeon comes ..	" 23—Dec. 27.	
Snipe comes .....	" 23—Nov. 20.	Sept. 29, Nov. 11—last seen Apr. 14.
Stone curlew clamours ..	Sept. 1—Nov. 7.	June 17.

The dates, when more than one, are intended to express earliest and latest times in which the noted fact was perceived; and country residents may compare them with their own observations.

At Caen, swallows and martins appeared 17th Apr. 1868. Also swifts a week earlier than usual. On 27th July many were visible, but on 29th (thermo. 68 degs.) every swift had vanished, a fortnight earlier than usual. Besides the turtle-dove, there are in Britain three kinds of wild pigeons, the ring, stock, and rock-dove, the latter is smaller than the stock-dove, and it is believed to be the progenitor of all domestic breeds of pigeons. The ring-dove is larger than the stock, or rock-dove. In Selborne woods formerly, before the beech was thinned, pigeons abounded in thousands, as they do still near the Mississippi in America, where, as the poet wrote—

"Their rising all at once was like the sound  
Of thunder heard remote."

N N

Dryden has given Virgil's description of the rock-dove's movement in appropriate language:—

"As when the dove her rocky hold forsakes,  
Roused in a fright, her sounding wings she shakes;  
The cavern rings with clattering, out she flies,  
And leaves her callow care, and cleaves the skies;  
At first she flutters—but at length she springs  
To smoother flight, and shoots upon her wings."

Ring-doves feed on the leaves of vegetables. The neighbour of Mr. W. shot one with its crop stuffed with tops of turnips, which were boiled and eaten with the bird. But the turnip itself would confer a rancid taste, different from that given by beech-mast, acorns, and barley, eaten by wild pigeons generally. During last summer, Mr. J. Slater of A-dorrie House, N.B., found in the crop of one woodpigeon, 824 grains of wheat, 8 peas, 5 beans, 4 oats! But, as a set off, its consumption of slugs &c. should be remembered.

As much doubt still prevails respecting migratory birds I may before concluding this letter produce the following observations made by Mr. Andrew Bloxam of Glenfield, near Leicester, during his voyage from England to South America in 1824-5. Upon his return voyage he observed no land birds at sea. He saw on 11th Oct., 1824, a chaffinch, in lat. 48 degs. 33 min. N., long. 7 degs. 50 min. W., also several snipes. Oct. 13, skylark was caught, in lat. 45 degs. 4 min. N., long. 10 degs. 10 min. W. Oct. 14, a goldfinch caught, much exhausted; white owl seen, lat. 44 degs. 1 min. N., long. 11 degs. 19 min. W. Oct. 27, hawk seen 250 miles from Canary Islands, nearest land. Oct. 29, two swallows seen, lat. 23 degs. 11 min. N., long. 23 degs. 13 min. W. Oct. 30, many swallows and martins seen and caught in search of flies, lat. 41 degs. 47 min. N., long. 25 degs. 58 min. W. Oct. 31, many swallows and martin seen apparently on S.W. course. Hen redstart came and was fed in lat. 19 degs. 54 min. N., long. 25 degs. W. Nov. 3, swallows seen. Nov. 4, spotted gallinule caught on deck, lat. 8 degs. 2 min. N., long. 25 degs. 37 min. W. Nov. 7, Kestrel hawk caught, but escaped, seen 424 miles from land, in lat. 8 degs. 9 min. N., long. 24 degs. 40 min. W. All British birds verified by reference to Bewick's birds. Nov. 21, small bat or large moth seen, high up, and 300 miles from nearest land. Nov. 23, a Brazilian land bird settled on board, in lat. 22 degs. 46 min. S., long. 37 degs. 42 min. W., 300 miles from Rio Janeiro. Dec. 30, *Fringilla Australis* flew on board, 37 miles south of Staten land, N. breeze. 1825, Sept. 28, small humming bird seen about 10 miles from land, off Chili coast, opposite Concepcion. In 1709 a wild duck was shot in Sussex, with a silver collar round its neck, having the arms engraved of the then King of Denmark. The late Sir John Sinclair, hatched the eggs of nightingales by means of robins, and the birds remained during the

season; but did not return to the same locality. It is a fact that swallows occasionally remain in England, even through the whole winter. The Rev. W. Bree saw one solate as Nov. 20, and one was seen in London on Nov. 23, 1828. They have been seen at sea, 200 miles from Madeira, in March, 1825; also hay-birds warbling at the same place and time. Mr. W. once saw house-martins on 20th Nov. at Oxford, and swallows on 29th Oct. Also redwing and fieldfares flying in sight together on 7th of Nov. The swift was seen in England on 15th Sept. 1817. As to arrival, first comes the sand-martin, then the house-swallow, the house-martin and swift. Mr. W. was disposed to believe that in 1780, at least Selborne house-martins did not migrate. Audubon the American ornithologist, found swallows at New Orleans, in Nov., Dec., and Jan., with thermo. at 65 degs., 30 degs., 63 degs., 42 degs. and 40 degs. They retired to the holes about the houses, or resorted to the lakes or branches of the *cirier* in flocks. These were republican or cliff-swallows. Mr. W. observed that they seemed to remain at Oxford longer than at other places, owing perhaps to the marshy vicinity. According to Lord Bacon, cold winters are shown by early advent of fieldfares from northern counties of Britain. Mr. Jesse stated that caged nightingales are more adfety at night during season of migration, than at any other time, which tends to prove the fact of their nocturnal flight. The male arrives here about middle of April, 10 or 14 days before the female. Bird-catchers preserve the former, but not if they have been mated, as these generally pine away. In Prussia is, or was, a tax on all captive nightingales, a wise and humane law which might include with propriety other members of the feathered tribe. Except the bull-finch, all birds seem to suffer from imprisonment. Mr. White favoured the doctrine that swallow tribe are submerged during winter, but it has been objected that all places 80 feet below surface of the earth are constantly of the same temperature, where there is no solar influence; wherefore, they would not recover from the effect of cold. Mr. W. quoted a "Swedish naturalist," probably Linnæus, in favour of his opinion. Ancient authors believed in their migratory habits. In the Greek play, the "Birds of Aristophanes," the swallow was stated to point out the time for assuming spring dresses; and, according to the Greek calendar of Hara, kept at Athens by Theophrastus, the Ornithian winds blew, and swallows arrived, between 28th Feb. and 12th March.

If there were more observers like Mr. White and Mr. Markwich upon land, and Mr. Bloxam at sea, questions like these might be more easily settled. Markwich, Audubon, Richardson, Wilson, and authors in general, believe in migration of swallows. As to Sweden, early in Sep. 1866 I was near Elsinore, in Denmark, a vast flock of them collecting and preparing for some speedy change.

I am, Sir, yours faithfully,

London, Nov. 10th.

CHRISTOPHER COOK.

## BREEDING AND FEEDING OF SHEEP.

At the late meeting of the members of the Stewartry Farmers' Club, Mr. M'ILLAN, of Halket-Leathes, said: It is very important for us as farmers to thoroughly understand the improvement of the species by crossing the different breeds of these animals. A knowledge of the kinds of food they require is also essential, so that we may know how to apply the most suitable to mature them early for the fat market; and whether such food is contained in and belongs to one or all of the different classes of silica, lime, or potash plants. In the history of sheep we are told that even in the antediluvian age, and soon after the expulsion from Eden, this animal had become the servant of man. If we were to reckon from the time of the Flood, the plains of Ararat would be their native country. It is certain that sheep were domesticated when they issued from the ark, and would not be neglected by Noah and his sons afterwards. And as the families of men spread abroad, sheep would be carried with them as constituting one of the most valuable portions of their wealth. I will not follow their migrations from Asia, neither will I allude to their changes in form and size, according to the dif-

ference of climate and pasture, as they journeyed towards the west, because I have no desire to forestall my friend in his remarks on the "Breeding and Feeding of Sheep," as these may be forthcoming at some future meeting of this club. I will, therefore, in the meantime, bring under your notice a few suggestions upon the earthy ingredients that sheep take from the soil, through the medium of the plants upon which they feed, and as these produce an influence on the organs of sheep, more or less extensive, according to circumstances, it is necessary that we as farmers should know these circumstances, and the materials that are required to build up and support their organs. The blood of sheep, and all classes of mammals, may be looked upon as their internal storehouse, from which all the organs draw their support, and must of necessity contain that which is required. The various inorganic ingredients are phosphate of soda, common salt, chloride of potassium, sulphate of soda, phosphate of magnesia, sulphate of lime, and oxide of iron. These substances have all their special functions to perform in the animal economy, and as there is a considerable quantity of them excreting daily from their

system, these, as well as that required for organs, must again be restored through their food. These mineral ingredients which support, and are necessary to the vitality of animals, are found to differ in kind in the different organs of their body. Thus the muscles contain much potash and very little soda, while the cartilages have much soda and no potash. As phosphate of lime is the earth of bones, and phosphate of magnesia the earth of muscles, the presence of fluorine is necessary for the formation of teeth, and that of silica the horny parts, while wool contains nitrogen, sulphur, and phosphorus. It has been fully ascertained that unless all the necessary inorganic substances are supplied to animals in their food or water they will languish and decay, although the organic constituents, such as carbon, hydrogen, oxygen, and nitrogen, be abundantly given them. It is, therefore, a wise provision in nature that plants refuse to grow on soils which do not supply them with soluble inorganic food, as it is by this established law that the plant becomes the connecting bond by which the dead earth and the living animal are linked together in the same chain of natural existence. It would occupy too much of your time for me to enter minutely into the nature of the inorganic salts which are required in a soil to produce a healthy herbage for sheep. I will, therefore, merely draw your attention to the quantity of one ingredient—sulphur—which is annually removed from the farms of this county with the fleece. Wool is found to contain 5 per cent. of sulphur, and recent statistical returns show that 361,428 sheep are kept in Kirkeudbrightshire. The yield of dry wool, when calculated at four pounds to the fleece, will be 1,445,712 pounds. This quantity of wool then removes 72,285 pounds of sulphur, which is nearly equal to 216,855 pounds of sulphuric acid. This large quantity, as a matter of course, must be all abstracted from the soils where this wool is grown. If we were to suppose this sulphur to exist in, and was to be abstracted from our soils in the form of sulphate of lime, then the plants which the sheep feed on must take from our fields 406,238 lbs. of this salt for the annual production of their wool. Although the quantity of sulphur carried off a farm in one year is small, still it is reasonable to expect that this kind of husbandry will deteriorate some of our hill pasture land, where nothing is ever added by art or from natural sources, as those plants which require sulphur for their health will gradually cease to grow. It may be a long time on some soils, and it may be short on others, before such plants diminish from this cause. But unless those lands are top-dressed with a manure in which sulphur or its acid naturally exists, a sterile time is likely to come. Sulphur is also removed from our farms in milk, cheese, flesh, muscle, hide, horn, hair, hoof, and nearly all other kinds of compounds. There is no doubt many tons of dissolved bones are yearly applied to our cultivated fields. These on an average contain about 16 per cent. of sulphuric acid, which is quite inadequate of itself, and would only form a fraction of the sulphates which must be in circulation in order to mature and form the nitrogenous compounds in the 50,510 acres of white and green crops annually grown and removed from the soils in this Stewartry. There are also an additional 100,000 acres of clover, meadow, and grass land, which require this ingredient, exclusive of our moor pastures. It must, therefore, be apparent that a greater quantity of sulphur is yearly removed with the marketable commodities, sold in wool and other agotised compounds, than that which is returned to our farms in the different kinds of artificial manures which are applied. When such is the present state of things we are called upon to inquire into the substratums of our soil, so that we may ascertain if we have in them the material for the natural production of this ingredient. The prevailing strata in this county are granitic and lower transition formations. Our soils, then, must have been nearly all disintegrated from these rocks. Pure granite consists of a mechanical mixture of quartz, felspar, and mica. Our granitic formations, however, are classed syenite by geologists, because the mineral-hornblende has taken the place of mica. Quartz is silica; felspar consists of silica, alumina, potash, and soda; while hornblende contains a large per-centage of lime, magnesia, and oxide of iron, with minute quantities of silica and manganese, but no potash or soda. Our rocks of graywacke slates, traps, greenstones, and basalts, are commonly called whinstones. These consist more essentially of felspar and hornblende. In comparing these formations it may be stated generally that granite is nearly all felspar and quartz, while graywacke slate

consists mostly of felspar and hornblende. A chemical knowledge of rocks from which soils are derived gives rise to several interesting observations. It shows that soils formed from pure granite in their natural state may be very unfruitful, while a soil formed from whinstone may be eminently fertile. But when mixed, the latter is almost sure to redeem the former from its barrenness. Such has been the result in every part of the globe. Although this is the general rule in such granite as ours, if the mineral hornblende be in larger proportion than usual, a soil of average fertility would be produced. In like manner trap rocks are sometimes so peculiar in their composition as to form a soil almost hopelessly unproductive; but whenever the texture of a primary rock is soft, with abundance of felspar and hornblende, it is always fertile. It may also be observed that whenever our syenite formations have a tinge of red, or are very dark in their appearance, sheep will thrive pretty well, as this indicates a larger quantity of hornblende. On the other hand, when this formation is of a pale white colour, it will not be so productive. I have observed that farmers on some kinds of syenite cannot remove lambs from their mothers without the risk of that disease commonly called "vanquish." The cause of this weakening of the vital power is in a great measure due to the want of those complex sulphurous compounds in the grass given them, the ewe being so constituted as to give her offspring all that it requires with her milk, although it is at the exhaustion of her own system. We are therefore called upon to study the laws of nature, so that we may be able to bring together those materials which are best suited to act usefully upon each other; and also to learn the best conditions for their beneficial action, in order to promote the vigorous exercise of all the vital power which exists in all kinds of seeds, remembering that unless all the soluble inorganic ingredients required for their support are present, the seed will produce a weak and unhealthy plant, and the animals fed on these plants will be wanting in stamina for all the functions of life. This weakening will ultimately affect the production of wool. I trust the time is not far distant when this club will thoroughly ventilate this important subject, although a good soil and salubrious climate are essential requisites for the development of this kind of husbandry.

The CHAIRMAN said he might mention that Mr. M'Millan had studied chemistry much more than any of them, and he (the chairman) thought that farmers generally ought to turn their attention more to science than they had hitherto done, in order that they might be able to judge for themselves as to the value of the manures they were purchasing, instead of being laid hold of by the sleave by the merchant who professes to sell cheapest, and gives you stuff at £9 per ton which is probably not worth £6. He thought Mr. M'Millan could not have given them better advice.

Mr. M'MILLAN said sulphur must be applied in the form of a salt, such as the sulphate of lime. It would be better to combine the acid with the lime, as they would get the latter into the bargain. The commercial name of it was gypsum or plaster of Paris. It would require about 4 cwt. to the acre, and should be put on in the autumn or spring, as it was not easily dissolved, and would require to be a considerable time on the soil. The carbonate of ammonia, which was brought down in rain-water, would combine with it, and give two other salts to the soil, the most important being the sulphate of ammonia, and that was much better than paying £16 a ton for that salt alone.

Mr. DALZIEL, Waterside, asked how long one dressing would affect the soil? Would it require to be renewed annually? He was speaking in reference to their mountain pastures. He supposed that where great floods came the ammonia would be fixed in the soil, and would continue its power for a considerable time.

Mr. M'MILLAN: Yes.

Mr. DALZIEL: If it came on a very heavy shower, would the rain extract the ammonia?

Mr. M'MILLAN: I should think not. Instead of doing so it gave the soil the benefit of two additional salts.

Mr. M'TURK, Rascarroll, asked whether sheep abstracted more than cattle from the soil?

Mr. M'MILLAN said that sheep abstracted more than cattle, but dairy cows would abstract more than either of them, as they required more nitrogenous compounds to form casein in milk. A calculation made in America was that dairy cows



abstracted from the soil fifteen times as much as a feeding animal.

Mr. M'TURK suggested that a laboratory should be started for the purpose of teaching those desirous of learning chemistry.

Mr. M'MILLAN: Any of the gentlemen present could acquire a knowledge of chemistry for themselves, and he thought they should all do so.

The conversation then turned on the subject of manures.

Mr. RAIN, Cuil, said if the Club was to be of any real benefit to farmers the first thing they should do was to set themselves against spurious manures.

Mr. M'MILLAN thought that was one of the principal things a farmer should study, and if he could manage to analyze the manures he bought it would be a decided check on the sellers.

Mr. RAIN said the farmer would not be so easily beat then. The merchants sent their analysis with the manures, and the farmers sowed what was sent, and after it was in the ground they could not help themselves. Then the season got all the blame, and numerous other things, while it was the fault of the manures all the time.

It was agreed that the subject of discussion at the next meeting should be Manures, which Mr. M'MILLAN agreed to open.

## SHELTER FOR MANURE.

The difference in value between sheltered and unsheltered manure is sometimes immense, and sometimes not very great.

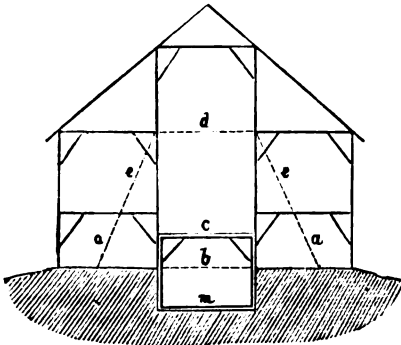


Fig. 1.—DIAGRAM SHOWING MANURE PIT.

That which is suffered to become dry very rapidly deteriorates, while that which is constantly moist or wet (yet is never washed), and frequently receiving additions upon its surface, loses but a little, if any, part of its value. It is, in fact, under cover. Still, there is always a surface portion liable to become

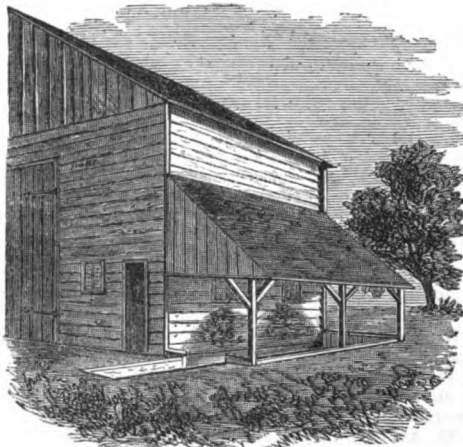


Fig. 2.—LEAN-TO MANURE PIT.

dry after fermentation and decay have taken place and ammonia is formed, in which case it would deteriorate. It is not alone to preserve animal manure that agriculturists advise that

it be kept in cellars or under cover in some way. It rots faster, its decay is more easily regulated, and it is more easily composted and mixed with vegetable matter, and the fermentation which it induces in the mass is much more uniform. Besides, it becomes the breeding place and food of fewer maggots, etc.

Old-fashioned barns all over the country may be seen disfigured by the dark (or light) stains of the regular winter dung heaps, which, year after year, have accumulated under the windows of both cattle and horse stables. No doubt thousands of such barns are owned by readers of the *Agriculturist*, and we are frequently inquired of how they may be conveniently modified, and how the manure may be kept to best advantage outside of them. We suggest three ways. The barn may be raised 2 to 6 feet, and a cellar dug beneath, which would require the moving of 2 to 5 feet of earth to give a cellar 7 feet high in the clear, which is low enough.

To illustrate another way we have introduced a diagram, fig. 1, representing the cross-section of an old-fashioned barn with cattle stables (a a) on each side of the floor. The floor is taken away; its place is indicated by the dotted line (b). A new floor (c) is placed some 5 feet above the old one, new posts being set, if necessary, to support the timbers. Under the floor a pit (m) is dug for manure. The cattle are placed to the outside and foddered from the floor above. A raised approach is made for reaching the thrashing floor, and under it, or at the opposite end of the barn, is a passage gradually sloping to the bottom of the manure pit. The raising of the barn floor may necessitate the removal of the cross beams (d) above; and if this be done it may be desirable to brace the centre posts in some way, as indicated by the dotted lines at e, e.

Another, and the cheapest, and yet an efficient way is to build lean-to sheds along the sides of the barn, over a manure pit. This is shown in figs. 2 and 3. The old stains are seen on the sides of the building under the windows. The pit is 4 feet deep, 12 feet wide, and as long as the barn. A slanting passage-way for carts in and out, to save high pitching, is provided at one end. The pit walls are laid in cement, and the bottom is a substantial grouting of stones and cement. In the middle near the outside a hole is made about three feet wide, by two deep, which is cemented also, and covered with a door. The floor slopes toward this, and if there is water anywhere it will find its way here, and may be pumped up and spread upon

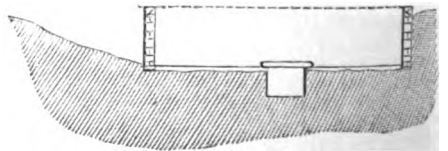


Fig. 3.—SECTION OF MANURE PIT.

the heap. The sides of the shed may be boarded down to prevent snow and rain blowing in, but it is usually the case that a moderate supply of water from without is needed, and must be added in some way.—*American Agriculturist*.

## THE FARMERS' VIEW OF TAKEALL.

Although, as we notified a week or two ago, the farmers had much to say before the Commission on Cereal Diseases with regard to takeall, they appeared to be equally bewildered with the scientific men as to its origin and antidote. They could describe its manifestations and ravages with pathetic fluency, but they could not go much further. Chemical analysis of soils had been made in a few isolated instances, but even the analysts could not venture upon a positive inference from such meagre evidence. How then was it likely that agriculturists, who, as a class, are notoriously conservative and anti-speculative, could arrive at any conclusion useful to them in their operations? Where theorists hesitate to draw deductions, practical men may fairly be excused for want of perception.

The first witness whose attention was called to the takeall subject was Mr. Martin, of Maclaren Vale. For sixteen years he had been engaged in cultivating wheat, and the disease had become to him a familiar enemy, fluctuating in its destructiveness from year to year. But long experience had failed to assure him what the nature of the infection was. Indeed, he scarcely knew what to think of it. It was an enigma to him; but after long reflection and a careful scrutiny of the roots, he inclined to the view that the ground was overcharged with some ingredient—probably salt—which promoted the growth of weeds in preference to that of wheat. Here, of course, Mr. Martin falls foul of Dr. Muecke, who firmly entertains the opinion that it is the poverty not the affluence of the soil that is at fault; that it is the deficiency of silicates and phosphates, not the superabundance of salt, which accounts for the prevalence of this form of blight. The witness went further, and supported his opposition to deficit doctrine by alluding to the presence of takeall on very rich new land—some of the richest spots in the province. It was not traceable to a superfluity of moisture, for it presented itself on hill-sides and slopes as well as on Bay of Biscay land. It was most capricious in its action, for it did great havoc in fields which had only been cropped two or three times, whilst sparing adjacent ones which had borne ten or a dozen crops. And, finally, it was indiscriminate in its attacks, affecting all descriptions of wheat, and all oats except Cape oats. On examining the roots of the diseased plant he found that they had changed from the natural colour to an unhealthy black. Mr. Martin's statement closed with the satisfactory announcement that he had experienced good results from using sulphur in dressing the wheat, his plan having been to soak the seed for an hour or more in water, then sprinkle over it four ounces of sulphur per bushel, with sufficient quicklime to dry it. There seems a little difficulty in reconciling the benefit said to result from this treatment with the supposition that a condition of the soil is accountable for the presence of the disease.

We next come to a witness—Mr. Warren, of Port Gawler—who had luckily had no experience of takeall; but seeing that his crop, which bid fair for fifteen bushels, only yielded one bushel and a quarter through the visitation of red rust, an aggravation of his unfortunate position might well be spared him. Mr. Patterson had discovered that manure was quite ineffectual to check the disease. Last season it had been the forerunner of the red rust, making its appearance towards the end of August, and continuing until the wheat was out in ear. One commissioner innocently asked if the rust assailed plants which had previously been affected, and was informed that the takeall effectually completed the task of annihilation. It was by no means restricted as to locality. He had noticed it on late-ploughed fallow land—on a piece of stubble land there were not two-thirds of the crop left; whereas, upon an adjoining block of twenty acres, which was early fallowed, there was not a vestige to be seen. He had been unable by ex-

amining the roots to detect any insect, and he had observed that while the takeall as a rule went up and down the land, it occasionally reversed the order, especially in a gully. Its ravages extended over rich and inferior land alike, and he had ascertained that the roots of a diseased plant were encased in earth, which looked as if it had been worked into a paste. His belief was that the takeall was an insect of some sort, and he had found good results from a frequent turning over of the soil. He had tried sulphuric acid as a specific without avail, but he had not made use of the sulphur. Mr. William Forrest, of Pinkerton's Plains, has, so far, enjoyed a comparative immunity, but the result of his reflections in the matter was that the takeall was a native inherent to the soil; that it was first developed through certain properties of the land being exhausted, or through others being too plentiful. When met with the difficulty that the disease was very destructive on grass lands which had never been turned over, and presumably could not have been exhausted, he pointed out that the continual production of the same grasses might have an exhaustive effect upon those particular ingredients which they mainly relied on for sustenance. He had to a small extent seen it on land that had never borne a crop before, as also in fields which had been thoroughly manured and fallowed; but he had noticed that the perpetual yield of wheat year after year increased the liability of the land to become infected. The quality of the subsoil had, in his opinion, a very important bearing upon the question, and his notions on this point involved the very unsatisfactory conclusion that the poorer the soil was the longer it would last, and that fertility was by no means an unmixed good in connexion with any farm.

Mr. May, of Mount Barker, who is a supporter of the insect theory, gave some information as to the devastating effects of takeall. He had seen it attack the same piece of land year after year; he had watched it spread all through the spring, leaving nothing behind it; the vegetation on whole sections was sometimes cleared off by it. One case was mentioned of land which was let to a person after having been depastured for years. It was rich soil, and the first year it was ploughed takeall made a clean sweep of the crop, although it promised thirty bushels an acre. Next year half went, and the third year scarcely any was taken. He had known the disease in Tasmania; but he was not acquainted with any remedy. Mr. J. Headlip, of Undalya, was blissfully ignorant of the nature of takeall; but Mr. Walter Thomson, of O'Halloran Hill, on the other hand, knew it of old, and was able to testify that it attacked everything that came on the land except cocksfoot and sow thistles. His opinion was that it was the result of something in the soil, and he had been very successful in his experiments to counteract it by burning. He had tried lime, and all the nostrums of essayists, without effect. Sulphuric acid dressing had failed to touch the disease; depasturing had proved equally inefficacious, but burning chaff or rubbish of any sort was productive of good, and he had also tried the plan of alternating his wheat crop with peas with some profit.

We have now given the substance of the agricultural evidence in reference to this mysterious disease. It fully establishes the fact of its very extensive diffusion and its apparent disregard of variations in conditions of soil and in seasons. It gives full scope for theorizing, but it has so far defied all attempts to determine its origin. If, as seems probable, the view is correct that certain conditions of soil favour its development, special force is given to the recommendation of the Committee that a duly qualified analyst should be appointed to make investigations which may be of general advantage to the farmers. It would be unwise and unsafe to build up any theory upon an imperfect system of analysis, but the interests at stake are sufficiently great to justify a systematic scrutiny. This is a matter in which the assistance of the Government can be very reasonably asked for, and we doubt not that before the session closes some legislation on the subject will be at least attempted.—*Adelaide Observer*.

## THE SMALL FARM SYSTEM IN FRANCE.

The questions of large and small-farming have received their solutions in the practice of England in the first, and that of France and other continental countries, with our own Ireland before the famine, in the second case. Even the most strenuous advocates for the subdivision of the land, according to the "Code Napoleon," are compelled to admit that the principle may be carried too far; and the present Sovereign of France—Napoleon the Third—has declared that "*The law for equalizing the division of property has been the ruin of agriculture.*" It is therefore with strict propriety that M. Morny has been appointed to inquire into the working of the Code Napoleon, or that part of it (Articles 826 and 832) which provides for the subdivision of landed property on the death of the owner, equally amongst his children. M. Morny's report has been presented to the Minister of Agriculture, Commerce, and Public Works, by whom it has been published, and it affords a fair statement of the arguments pro. and con. on the subject, without the reporter offering any opinion of his own upon it. He states that the very large domains in the East and North are subdivided; but that for some years, the increased facilities of communication, have gained to the large-farm system a considerable number of new proprietors, enriched in the cities and towns by commerce and manufactures. This is considered as the beginning of a reaction in favour of large domains. Notwithstanding this, the *morcellement* makes progress and absorbs most of the estates which are thrown into the market, every day increasing the number of peasant-proprietors, some of whom have not even a plough to cultivate their portion of land.

The law of succession in France is, as we have stated above, regulated by Art. 826 and 832 of the Code Napoleon. The first says: "Each of the heritors may demand his portion in kind of the moveable and fixed property of the succession." The second adds: "In the formation and composition of the lots, they must avoid as much as possible a division of the fields; and to appropriate to each lot, if possible, an equal share of moveable and fixed property, rights, and debts of whatever nature and value." Under this law the number of landowners has increased in France to nearly six millions, and in some parts of the country the land is so subdivided, that the most strenuous advocates of the system begin to be alarmed; not only at the baneful influence it exercises upon agriculture, but on account of the state of poverty in which the present proprietors are at times involved. The system, indeed, of subdivision is carried to a length of which an English farmer has no idea. Fancy, for instance, a large estate cut into pieces the size of those allotments held by the agricultural labourers in some parts of this country! Well, we have now before us a map of such an estate near Munich in Bavaria; for the system prevails in almost every continental country. This estate contains within a "ring-fence," 897 acres (362 hectares), and it is divided into 578 parcels or lots, averaging rather more than  $1\frac{1}{2}$  acre each. These having no fences or mode of separation, were so intermingled one with another, as to create inextricable confusion, rendering it necessary to obtain from the Government the power of throwing the whole into one mass, and dividing it according to the quantity belonging to each proprietor. The same has been done on a much larger scale in Prussia, and the same must, before long, be done in France; at least, in some of the departemens. Thus, in that of the Lower Rhine

the land is divided into upwards of two millions of such parcels, and they are constantly increasing in number "with fearful rapidity."

M. Lavergne is a strenuous advocate of the small property principle, because it supports more people and raises a larger gross produce. But he admits that the net produce is less, and, with all his predilection for the principle, he expresses a hope in one of his works, that in the end "large farming will become general, in order to perform what small-farming cannot do."

This question not only involves the welfare and the profit of the farmer, but that of the country at large; and from this point of view there can be no doubt of the superiority of large-farming. For if the gross produce of—say, a thousand acres sub-divided into five hundred holdings does raise a larger produce than if it was held by one or two persons; on the other hand, there will be double, treble, probably four times, or even six times the number of persons residing upon it who must all be fed, and who, in a bad season, will be dependent upon charity. How they will be supported, the condition of Ireland in 1847-8 has disclosed. Nor is the condition of the peasant proprietors in France much better, if we are to believe M. Lavergne, who states that "they are always embarrassed! They succeeded very well whilst high prices lasted; but as soon as low rates came they could no longer pay rent, and the proprietors ejected them, and let the lands to large farmers with capital." He adds: "This crisis stopped the progress of sub-division, which threatened to become excessive." This admission, as well as the foregoing, recollect, is made by an advocate of small farms.

Many of the small and middle-land proprietors would gladly have an abrogation, or at least a modification, of the law of succession, so as to be able to leave the estate by will undivided, subject to such obligations as the interests of the junior and female branches of the family might require. But the *Code Napoleon* is imperative, and any will making such a stipulation would at once be suppressed by the courts, and a strict subdivision, according to the articles 826 and 832, enforced. Thus, if a man die, and leave, say £200, or four acres, in land and £200 in money or goods, each of his children may claim a share of each of those sums, and no testamentary disposal of it otherwise would stand good. And if the land be divided into four small fields, each of the children may claim a share of each field; so that if there are four children, the fields will be subdivided into sixteen lots of a quarter of an acre each, and so intermingled that they cannot be got at without trespassing upon each other's holding.

What kind of husbandry is it possible to practise under such circumstances? Is it to be wondered at that in Alsace, where this principle is carried to excess, the produce of wheat is not more than from  $7\frac{1}{2}$  to  $8\frac{1}{2}$  bushels per acre, which is not more than it was in Arthur Young's time? "The *morcellement* in this and the next departement of Lorraine," says M. Pariset, a member of an agricultural committee, "has been pushed to such an extent that many of the slips are only 4, 3, 2, and even less, acres ( $48\frac{1}{2}$ , 349, and 339 yards) in extent. The old triennial course has been carried to the extreme and weakened the soil; the meadows and pastures have disappeared, whilst arable land has increased, but green crops are neglected. Sheep also have

disappeared, neat cattle have not increased, and the *average return of wheat is reduced*. The present system is at an end, and has led to a condition which calamitous seasons have revealed but not created. Our farmers have got into debt, and have become debilitated in body and mind. Any arrangement for a course of cropping is impossible while the lands remain entangled as they are. No other crops but wheat or oats can be cultivated; and the only roads for gathering in the harvests are over the land of the next owners." To finish this picture, we may state that the population numbers 123 to every 100 hec-

tares (247 acres), or one to every two acres! There are, in fact, 400,000 land proprietors sharing amongst them 1,234,000 acres, or rather more than 3 acres each.

Some of our political economists are calling out for the adoption of a system of small-farming. They argue that in France a large majority of the rural population are in favour of the law, provided the principle is not carried too far. We should be glad to know how the questionable articles of the Code Napoleon can be so modified as to retain the principle of *morcellement* without its attendant evils?

## COAL ASHES, ARE THEY A MANURE?

[TRANSLATED FROM THE FRENCH.]

Coal-ashes, or coke, for they are the same thing, are in bad repute with the market-gardeners of Paris, who charge them with injuring the land, and diminishing the activity of the City sweepings, with which they are often found mixed. Nor are they more highly esteemed in the country, where they throw them into the common sewers, rather than carry them into the fields.

These ashes, however, have found defenders. If we are well-informed, some agriculturists—especially in Belgium—consider them as a proper application on clay soils, in order to relieve their tenacity. But that which has been said most decisively in their favour was published by M. Lebeuf, a land-owner at Argenteuil, being a detail of experiments, an account of which we have read in several horticultural, agricultural, and even political journals. It would appear from these experiments that wheat and oats, cultivated in pure coal ashes, without the addition of any manure, have had a very fine vegetation, and ripened their grain; and that strawberry-plants also grew vigorously in them. M. Lebeuf concludes from this attempt, that coal-ash is at once a manure and an improver of the soil; and, without determining hastily its value as a manure, he thinks he may affirm that it is equivalent in this respect to thrice its weight of stable-dung.

These assertions of so eminent an agriculturist must have greatly surprised his readers. In fact, it is evident that if coal-ashes, which are now found everywhere, possess the virtue ascribed to them by M. Lebeuf, they will soon become a true manna for our impoverished lands. But is it really so? the chemical analyses which have discovered in them neither phosphates nor soluble salts of potash in any appreciable quantities, would themselves be at fault. I was too much interested in the question not to endeavour to clear up my doubts; and experiment has been the means to which I have had recourse, in order to do so. Let me give the experiments I have made this year at the Museum of Natural History. It will be seen that they have, to my great regret, given me entirely different results from those at which M. Lebeuf has arrived.

*First Experiment.*—In the second fortnight of April I took three ordinary garden flower-pots of 28 centimetres (about 9 inches) wide, and about the same depth. These pots having been carefully drained with the help of potsherds and gravel, so facilitate the escape of the water, and hinder the roots of the plants from passing through the holes at the bottom, I filled one with pure coal-ashes, another with sandy heath-earth of a very middling quality, and the third with a mixture of his heath-soil and coal-ashes, in the proportion of three of the first to one of the latter. In each of these three pots I sowed three haricot beans of a dwarf variety, all at the same time. A fourth pot, of 12 centimetres width, the capacity of which was little more than one-seventh of that of the former ones, was filled with a silicious yellowish sand, very infertile by itself, but light and very permeable to the water and the roots. This pot received a single grain of the same dwarf haricots; and all the pots were sunk in a plat-band, and we gave the same attention and watering to them all. All the haricots germinated at the same time; but those in the pure coal-ashes had more difficulty in vegetating, and in developing their first leaves. They grew slowly, and remained from the

first day sensibly behind those in the other pots. Soon, even one of them stopped growing entirely, turned yellow, and perished. The two survivors continued to grow, but very slowly, as sickly plants will do; and their yellowish leaves fell off successively, after some days. I pass in silence the other details of the vegetation of the four lots, in order to arrive quickly at the final result. On the 18th July, the vegetation of all these haricots was nearly completed. Those in the pure heath-soil had all along kept a little in advance of those of the mixed earth (one-fourth ash to three-fourths of heath-soil), without being well developed, which explains, on the one hand, the poorness of the earth, and, on the other, the little space the roots had given them in the pots; they had, nevertheless, flourished and formed some pods which almost arrived at perfection, some containing a small number of seeds, and others empty and smaller. On the three plants of this lot there were two which produced each four seeds; the third yielded only three, making a total of eleven for the three plants, or 3.66 grains per plant on the average. The three haricots planted in the mixture of three of heath-soil to one of coal-ash had also grown in a satisfactory manner in regard to the conditions in which they lived. On the 18th July, one of the three plants bore two pods, containing each one seed; the second bore also two pods, one empty, the other containing two grains; the third had produced three seeds in a single pod, by the side of which was a second, which was empty. Thus the three plants had produced together seven grains, or 2.33 each plant. The two haricots that had survived in the pure coal-ash made a sad figure by the side of the others. Their stems did not exceed 12 centimetres (about 4½ inches) in height, and one of them was nothing more than a staddle without leaves. The other still preserved three yellow leaves, the falling off of which was evidently near. On each of them there were shown three or four flower-buds, which fell off without opening. As to the haricot planted by itself in the small pot of silicious sand, it had at first been well-developed; but a slug having gnawed off the bark round the neck, it was stopped in its growth for some time. It however re-formed itself, and, on the 18th July, being still in leaf, it bore two pods, nearly ripe, and containing each one grain.

*Second Experiment.*—In the second fortnight of April, two small pots of 12 centimetres, were filled—one with pure coal-ash, the other with heath soil, and in each of them were sown four seeds of water-melons. In the coal-ash the seeds came up four or five days later than in the heath-earth, and the young plants grew so slowly that one might have believed them quite stopped. At the end of some days two of them were transplanted with their balls of earth into two pots of 26 centimetres (more than 10 inches) filled with coal-ashes; another was planted with naked roots, in a pot of the same size, containing ordinary earth of an inferior quality. A fourth was put into the open ground on the ridge, in which the pots sown with the other plants were sunk. The same attention in all respects was paid to each. In spite of the poverty of the soil, the water-melon planted in the ridge assumed the ordinary proportions. Its branch was four metres (more than 4 yards) in length, threw out several branches, flowered, and finally produced a fruit which was considered of the average size of the species.

That in the pot filled with earth from the ridge grew at first with some vigour, which however was stopped when the roots, having filled the pots, found no more food. At the same time, its branch still reached four metres in length, and produced several male flowers in the autumn. The two roots that had been planted in the coal-ashes, remained almost stationary. Neither of these developed, throughout the summer, more than eight or ten leaves, at most 6 or 7 centimetres wide (rather more than 2 inches), and these appeared only three or four at a time, the lower or first ones drying up, as the later ones developed themselves above them. The stems of these two plants remained straight and erect, not extending 15 or 18 centimetres in length (6 or 7 inches). Neither bore any flowers.

**Third Experiment.**—In the first fortnight of May I sowed some seeds of *beak maize* (a variety so called from the form of the grains, which terminate in a point), some in heath-mould, others in coal-ashes. These last germinated the most slowly, and from their appearance the young plants were from the first diseased. Two of these were planted separately in pots of 26 centimetres, drained and filled with coal-ashes. Two other plants of the same maize, but that had been germinated in heath-mould, were planted in pots of the same size as the preceding, equally drained, and filled with good earth, free and rather clayey. A fifth plant was left, by way of comparison, in the pure heath-mould in a pot of the same dimensions as the foregoing. All these pots were sunk in the same ridge, and received the same attention.

It would be difficult to imagine results more dissimilar than those which finished this experiment. The two plants of maize that were in the pots filled with free earth vegetated almost as well as if they had been in the open ground. They flowered and formed fine ears. On the 15th September they had matured, and I took them from the pots with all their roots, from which the earth was washed. When they were dried, I measured and weighed the two plants separately. One of the plants of maize 1 m. 88 c. (nearly six feet) in height from the ground to the summit of the male panicle; and it weighed with the roots 424 grammes (13 oz. 12 dwts. troy). On its ear, which was 18 centimetres (7 inches) in length, I counted 303 grains of a good size and quite ripe. The second plant was not so large and was more stubby; its maturity was less forward, and its stalk more watery than that of the preceding; this explains its greater weight, which was 512 grammes (16 oz. 9 dwts.), although its height was only 1 m. 20 c. (or 1 yard 7 inches). The female ear, longer than that of the first, had been incompletely fecundated, and produced only 173 grains, otherwise perfectly developed. The weight of the two plants together being 936 grammes, the average of each was consequently 468 grammes (15 oz. troy). The stool of maize which had been planted in the heath-mould caught the eye at the first glance, as showing how comparatively infertile this earth is. Its stalk, scarcely of the size of the little finger, rose, notwithstanding, to the height of 1 metre (3 feet); the leaves it bore were only half the length and width of those of the plants in a better soil; in the meantime it produced a small male panicle, which flowered; and a female ear, still more reduced, yielded only one single grain. The total weight of this plant was 107.5 gr. (3 oz. 7 dwts.). But this abortion was a giant by the side of those two plants of maize that were planted in the coal-ashes. These two had grown at the same rate, and were perfectly alike, except in one point, which I shall presently notice. Their stalks, scarcely as large as a wheat straw, and only 10 centimetres in one, and 12 in the other, in height, were entirely enveloped in the bases of the leaves; and these, which were reddish, were little more than 12 or 14 centimetres in length ( $\frac{1}{2}$  or  $\frac{5}{8}$  in.), and 8 to 10 millimetres (about one-third of an inch) in width. Here also, as in the water-melon mentioned above, the last leaves developed lived at the expense of the first, which withered away as the young ones appeared. One may conceive that neither of the two plants produced the slightest vestige of a male panicle, but there was one in which we perceived, coming from the axilla of the last leaf, two short filaments, which were the stigma of the same number of the rudiments of female flowers. These two plants weighed together with their roots 5.6 gr. (or  $1\frac{1}{2}$  dwts. each); comparing these weights with those of the plants of maize sown in a better soil, we find that each of those taken from the coal-ashes was to that of the heath-mould as 1 to 38.4; and to the average of those respectively planted in good earth as 1 to 167.

**Fourth Experiment.**—After having obtained proof that coal-ash was not favourable to any useful plant that I had till then attempted to cultivate in it, I wished to know if the useless plants, the weeds in fact, would accommodate themselves better in it. On the 29th June, in a pot of 26 centimetres diameter, drained, and filled with that ash, I planted, *with naked roots*, five young individuals belonging to the following species:—The common plantain (*Plantago major*), the knot-grass (*Polygonum aviculare*), shepherd's purse (*Thlaspi bursa pastoris*), common groundsel (*Senecio vulgaris*), and the black nightshade (*Solanum nigrum*). These rustic plants, which may be said to grow everywhere, and under every disadvantage, received the same attention and were regularly watered; yet none of them took root. They all perished in eight or ten days after being planted. Another pot, smaller in size, having been likewise filled with coal-ashes, I planted in it with the same care, and with naked roots, two young plants of the prickly Urtic (*Urtica urens*). Like the preceding ones, these two plants perished a few days after being planted, without having taken the least growth. They were replaced by two young plants of Marvel of Peru with long flowers (*Mirabilis longiflora*), planted also with naked roots, and treated in the same manner. I made a slight modification in the process; a young plant of groundsel was taken from a ridge in the garden, with a small ball of earth round the roots, and planted thus in the large pot of coal-ashes in which perished the five plants mentioned above. It took root, living upon its ball of earth, which was, however, too scanty to nourish it properly. Its stem lengthened without branching, remaining slender as a thread up to about 15 centimetres (about 6 inches), after which it was terminated by two small capitula of flowers. To accomplish this meagre vegetation, it required no less than two months and ten days from the time of planting.

**Fifth Experiment.**—On the 28th June, I began a new experiment on the dwarf haricots. Two large pots of 26 centimetres, well-drained, were filled, one with good free earth, the other with equal parts of the same earth and coal-ashes, and three haricots were sown in each of them. Another harvest of the same kind was sown in the open ground of the ridge where the two pots were sunk. They all germinated, but from their appearing above ground, the plants in the pot containing the coal-ash were weaker than the others. Those in the pot in which was the pure good earth became relatively very fine, although less so than the one sown in the open ground—the natural effect of pot-cultivation. These haricots had been sown too late for me to hope to see them finish their vegetation before the frosts of autumn; but the experiment was conclusive enough on the 28th September for me to decide upon stating the result. Although they were still green and full of leaf, almost all the pods had reached their normal development, and it was easy to reckon their grains. The plants were cut off at the level of the neck, and immediately placed on the scales. The following were the weights, taken very exactly, for each lot:—The three plants grown in the mixture of good earth and coal-ash weighed together 75 grammes, say 26 grammes each (or  $17\frac{1}{2}$  dwts.). These three bore 8 pods, containing, in all, 20 developed grains, which gives 2½ per pod, and 0.66 grains per plant. The three plants reared in the pot containing good earth alone weighed 320 grammes (10 oz. 5½ dwts. troy), or an average of 106.6 grammes (3 oz. 8½ dwts.) each plant. They bore 30 pods, unequal in size, but all containing well-formed grains, besides four or five small young pods, of which no account is taken. The seeds of the 20 matured pods numbered 59, which made 3 grains per pod, or 19.69 per plant. The product in seeds is therefore triple that of the three haricots raised in the mixture of earth and coal-ash. Lastly, the haricot raised alone in the open ground of the ridge, where its roots were able to extend themselves, weighed by itself alone 243 grammes (7 oz. 16 dwts.). It bore 15 fine pods, containing, in all 42 beans, or 2.8 per pod.

From all that precedes, it follows that, for any of the 10 species of plants on which my attention has been directed, coal-ash has been neither a manure nor even an earth of the most infertile quality. Not only it is shown to be very inferior to the silicious heath-earth, and the grey sand, but, in the two cases in which it has been mixed, whether with the heath-earth or the good free soil, it has still visibly hindered the development of the plants. Some have lived in it, it is true, but the most miserable life, and even this, we have a right to say, is to be attributed, in all probability, to the water.

whether by hand or the rain, which are never entirely deprived of principles assimilable by plants. The earthy dust, and possibly some organic débris brought by the wind to the surface of the pots containing the coal-ash, may also have

contributed to sustain that feeble vegetation. In presence of such facts, it is not possible to believe that coal-ash can be a manure, nor that the market-gardeners of Paris are wrong in banishing it from their gardens. C. NAUDIN.

## AGRICULTURAL AND LIVE-STOCK STATISTICS OF AUSTRALIA.

Although the details of agricultural and live-stock statistics for the colony have been for some months before the public, there are points in the report of Mr. Josiah Boothby, Government Statist, recently published, which deserve notice. This document presents in a clear and succinct form not only the general results of farming and pastoral operations during the last year, but it affords the means of ascertaining the general progress of the colony for years past. Although by no means elaborate, it supplies the means of comparison between the general condition of South Australia and the adjacent colonies, especially in regard to the occupancy and cultivation of the land. If current rumour is worth anything, this may be the last report prepared by Mr. Boothby; but unless a change is urgently required by the exigencies of the department, it would be a pity to disturb an arrangement which has worked so well in the past. The present Statist has discharged his duties for a series of years most satisfactorily. He has of course made himself conversant not only with the office details, but with the subject of agricultural and pastoral settlement in the colony. What he has accomplished so well hitherto it would scarcely be wise lightly to take out of his hands.

The land alienated from the Crown during last year, 144,021 acres, brings up the total at the close of 1867 to 3,568,742 acres, giving an average of over twenty and two-thirds acres for each man, woman, and child of the population, being an increase of two acres over 1858, and of two and a-half over 1862. Of the entire area which has been purchased from the State, nearly two-thirds is occupied by the holders of the fee. There do not appear to be any actual data given from which to ascertain what proportion of the alienated acreage is absolutely held for agricultural purposes; but from a useful table printed in the report it seems that the most numerous class of farm occupiers are those holding from 100 to 200 acres (forming 2,713 out of a total of 9,499 proprietors owning from 5 to 500 acres), the average area of each farm being 144 3-5ths acres. Next in number are the farmers of from 50 to 100 acres, of whom there are 2,214, with holdings averaging about 76 2-5ths acres. Farms of from 200 to 350 acres are held by 1,715 persons, the average extent of each farm in this class being 259 2-5ths acres. For the rest there are 992 holders of from 5 to 15 acres, 609 of from 15 to 30, 655 of from 30 to 50, 801 of from 50 to 100. Thus the total of 9,499 holders, 1,300,751 acres, the general average being 137 acres for each against the 104-acre average of the agriculturists in Victoria. The enclosed land amounts now to 4,712,276 acres, being in advance upon the previous year of 173,187 acres.

The special circumstances which have rendered last year memorable it is not necessary to recount. The farmers have too lively a recollection of the fact to be required to be informed that, through red rust, the average wheat-yield per acre was brought down to four and two-thirds bushels, or nine and three-quarter bushels less than the preceding season, and that all other cereals showed a comparative decline in average produce. But, for all this, the record exhibits on our part steady progress. It proves not only a disposition on the part of the people to obtain possession of land, but also to settle upon and cultivate it. Whatever may be the view entertained of the facilities provided for bona-fide occupation and improvement of land here, as compared with what they are in Victoria and New South Wales (Mr. Boothby authoritatively pronounces them to be "far greater in South Australia"), there is this to be said: South Australia in 1858 returned 204,462 acres of cultivated land, and in 1867 810,734; Victoria in 1858 showed a total of 237,728 acres cultivated, which in 1867 had increased to 592,915. The aggregates of New South Wales for the same periods were 223,296 acres and 451,225 acres respectively. View these figures in the light of the number of inhabitants, and we discover this result—that,

whereas South Australia's acreage of cultivated land per head of her population increased in the decennial period above given from about two-and-a-quarter acres (2.23) to nearly four-and-three-quarters (4.89), Victoria's only advanced from a little under half-an-acre (0.47) to slightly over nine-tenths of an acre (0.92), and New South Wales from rather less than two-thirds of an acre (0.65) to a trifle over one acre (1.04). In short, whilst our agricultural settlement has more than trebled itself in ten years, that of Victoria in 1867 was barely two-and-a-half times that of 1858, whilst that of New South Wales went little beyond doubling itself. Taking another comparison, we find that, from 1862 to 1867, South Australia had progressed from 444,511 acres to 810,734 acres; Victoria from 439,895 acres to 592,915 acres; and New South Wales from 302,138 acres to 451,225 acres: differently expressed, that South Australia had progressed about 37 per cent., Victoria 25 per cent., and New South Wales 33 per cent.; and it must be borne in mind that during this period the liberal land systems of our neighbours have been in force. During 1867-8 cultivation progressed to the extent of 10 per cent., being 2 per cent. under the increase recorded for 1866-7. At the same time, it may be mentioned that 23 per cent., or more than one acre out of every five which has passed from the Government into private hands, is under tillage.

Descending to special items, we are informed that 20 per cent. more land was sown with wheat in 1867 than had been in 1866, and that out of every 100 acres under cultivation wheat monopolized 68—a proportion in excess even of the high proportions of the past. In the table giving the decennial return of land under wheat, produce, and average yield, 1867-8 occupies a melancholy position, the quantity gathered being little more than a nominal improvement upon the year 1858-9, when the area sown was two-thirds less. In respect of hay, barley and oats, and potatoes, it is needless to repeat figures published some time ago. In respect to the last-named article, comment is made upon the fact that the yield during the last two seasons has been remarkably good. Peas are evidently forcing themselves into notice as a useful occasional crop, no less than 3,499 acres having been cultivated with this vegetable last year, against 1,853 the season before. The average yield per acre was 10 bushels 23lbs. The returns of fallowed land exhibited a falling off of 10,280 acres. In orchards and gardens there has been an increase of 652 acres, there being now 2,563 of the former, and 3,912 of the latter. "Vineyards," on the other hand, it is said, "show a slight decrease on the previous season of 152 acres. The total area is now 6,209 acres, with 5,869,406 vines in bearing, and 1,022,740 vines yet unproductive. The aggregate quantity of wine made is returned as 863,584 gallons, or 128,601 gallons more than at the previous vintage. The production of the past three vintages has averaged 816,000 gallons, or nearly five gallons per head of the population. The shipments of wine only amounted to 8,924 gallons, valued at £1,901. In 1862 we sent away 20,574 gallons, worth £50,545. This trade has declined year by year since the imposition in Victoria of the present prohibitive duty. According to the latest available returns, the produce of an acre of vines in New South Wales is 106 gallons, and in Victoria 70 gallons of wine. The South Australian vintage referred to herein produced 140 gallons to the acre."

The totals relative to live stock need not be reproduced. It is satisfactory to know that the returns in this respect "exhibit a large increase in the number of sheep (over half-a-million), and that the diminution in the number of horned cattle so rapid of late has at last reached its limit, being for the past year merely nominal." Since 1863 the number of cattle has decreased one-half, whereas for the past five years the increase in the flocks of the colony has been 30 per cent. Of the 4,477,445 furnished as the total in 1867, nearly three-fourths

were returned as depasturing within the boundaries of counties, only 1,450,579 being given for the outside districts. As an addendum to this branch of the subject, it is mentioned in a general way that more attention is being paid to dairy produce for supply of the home market and for exportation. This is decidedly a point in which an improvement upon the past is called for.

It is gratifying, in the face of the disasters of the past season, to find in this report palpable evidence that settlement is progressing very favourably in South Australia; that not only has she been able to hold her own in comparison with the other colonies, but has thus far maintained her pre-eminence in regard to the agricultural occupation of the soil.

## THE DESTRUCTION OF BIRDS IN AUSTRALIA.

Not many years ago it was the common belief that birds were among the worst foes that the farmer and gardener had to fight against. With assiduous regularity they came when the land was sown and when the fruit was ripe. They invaded the corn-fields; they swarmed upon the garden trees. Nothing was safe from their ravages, and their destructiveness was only equalled by their audacity. The time-honoured scarecrow was powerless to affright them; and all the artificial means adopted to check their inroads were unavailing. The ruby cherry, the fleshy peach, the luscious fig in turn fell a prey to their insatiable beaks. Measures for striking terror into their ranks proved abortive, and therefore the word went forth to exterminate them. They were not merely useless, they were unconscionable thieves. Their beauty and cheerfulness offered no protection to them against the shot of the remorseless gun. Fair and foul means were resorted to to ensnare, entrap, and massacre them. In England the rooks were the first victims. Many a fair and flourishing colony was reduced to a few stragglers on the strength of the merciless edict which had gone forth against them. They ate the seed-corn, and therefore they must have no quarter. But no great time was lost in declaring hostilities against the smaller and prettier forms of ornithological life. These found numerous champions from the very first on mere grounds of humanity. It was cruel to kill these innocent inoffensive-looking falcons and larks, sparrows and linnets; but arguments of this kind carried very little weight in a utilitarian point of view. Those who considered themselves sufferers by their voracity sank all sentiment, and steeled their hearts against the pitiful pleadings of the charming pillagers.

But by-and-bye a new light began to dawn upon the subject. With the decrease of the birds came a fearful increase of another plague more insidious in form, more devastating in effects. In places where the crusade against the winged pilferers had been most vigorous insect life began to develop itself to an alarming extent. Here was the argument which ornithophiles wanted. They had found it a profitless task to try to enkindle generous and humane feelings in the breast of Hodge so long as self-interest was the opposing motive; but having made it clear to him that he was doing injury to himself by the wholesale slaughter in which he had been engaged, it is amazing with what celerity his conversion to the humanity doctrine was accomplished. The law of moderation and kindness began to do its work. Agricultural oracles no longer instigated war to the death; gardeners' calendars ceased to enforce the oft-reiterated admonition—"use the fowling-piece freely; nothing else will rid you of the pests of the vineyard and the fruit-tree." An appeal had been made to the most powerful motive for action or inaction in man—his own interest. The justice of it was recognised, and a truce was declared.

Among the most zealous defenders of "nature's gamekeepers" was Michelet, and thus he years ago justified his creed:—"To the universal presence of the insect, to its ubiquity of number, the bird is still the counterpoise, with its rapid motion—its wing. The grand moment is when the insect, warmed into life by the genial influence of spring, finds himself face to face with the bird—the bird multiplied—the bird who, having no milk on which to feed its little ones, must provide for a helpless family of callow young, chirping and gaping with constant clamour. Ah! but for this necessity of hunting for a living prey, the world would be in danger of perishing yearly, if the bird were mammiferous. But with a famishing noisy brood of ten, fifteen, or twenty beaks ever gaping for their prey, the maternal frenzy rises to such a pitch that the titmouse or tomtit, with her twenty children, in

despair at finding 300 caterpillars or beetles a-day sufficient to appease them, rushes to the nest, and pecks open the brains of the little ones. Thus, besides the proof of the multiplication of insects, even in temperate and cold climates, we may say that a swallow requires more than a thousand flies a-day, and a couple of sparrows carry to their little ones 4,300 caterpillars a-week. We shall see at once and at the same time the evil and its remedy; therefore, if the bird levies a tax upon the plant, he is at the same time the protector and defender of it." A few months ago the people of Victoria were greatly exercised on the point as to whether they should vote the sparrows a nuisance or a benefit. As the fruit of acclimatisation these saucy marauders had begun to multiply with a marked fecundity. It was soon found that they were not altogether harmless, that they perversely insisted upon taking toll of those fruits which man would fain preserve for his own special benefit. For a time the fate of the stranger trembled in the balance; but to the lasting honour of the colony, the policy of mercy prevailed, and for a time at least, the new comer is free from molestation. And it must be gratifying for the Victorian authorities to find their decision supported by the experience of the New Yorkers. Not long ago the people in the populous state of New York were under great apprehension that the myriads of measure worms, canker worms, and caterpillars which infested their gardens and parks would clear off every green thing. Gigantic trees were regularly divested of foliage. According to the *Atlantic Monthly*, "all the trees, with the exception of the ailanthus, in the public parks and squares of New York and more southern cities became early in summer an unsightly collection of desolated branches, made yet more disgusting by the repulsive-looking worms that dangled from them and caught upon the clothes of the incautious." Sparrows were brought in to try conclusions with this formidable body. At first the smallness of their number precluded the possibility of their making much impression, but as they multiplied the worms diminished. Two years ago the sparrows got the upper hand, and they quickly completed the task set them. The trees relieved from the check upon their growth revived, and returned to their former luxuriance. In 1867 the triumph of the assailants was complete, and the value of their services was proved by the fact that last summer the parks and squares enjoyed a total immunity from the attacks of injurious insects. So much for the house sparrow. But no sooner had his labours been crowned with success than his one little failing began to excite attention. He was no doubt a victor over the offensive caterpillars, but he was not content with insect food alone. He liked grain as a change, and recognised a very palatable flavour in ripe fruit. To these articles of diet, therefore, he extended his notice, and quickly a loud outcry was raised against him. His good offices were ungratefully overlooked by many, and his reward threatened to be destruction. But friends presented themselves in his extremity. He was solemnly tried, the evidence *pro* and *con* was duly weighed, and by competent judges the balance of testimony was declared to be in his favour. His little perquisitions could not be denied, but his eminent services in the cause of arboriculture and botany were pleaded in extenuation, and the scale decidedly turned on the side of mercy.

The *Atlantic Monthly* gives some timely information as to ill-judged efforts for the extermination of the sparrow. It shows how the Great Frederick of Prussia ignorantly sought to increase the stock of his favourite cherries by banishing the "winged wardens," who, whilst protecting them from vermin, exacted a light toll as a recompense, and how, having learned to his cost that the policy he had adopted defeated its own ends, he gladly revoked his decree of slaughter and banish-



ment, encouraged the return of the exiles, and was freed from the visitation of caterpillars. It shows how in Hungary and Baden "the very men who had offered premiums for the destruction of the sparrow were induced to take the most energetic measures for their restoration," simply because "the inhabitants found to their cost, that the sparrows alone had been able to wage a successful war against the cockchafer and thousands of other winged insects that infest the lowlands." It shows how in these countries, as well as in France and Prussia, it has been considered necessary to call in the aid of the law to protect the farmer and the vigneron, by shielding the very birds which formerly were objects of relentless persecution; and it shows also how M. Florent Prevost, M. Quatrefoes, Michelet, and Mudie, first-class authorities, give unquestionable proof of the great utility of the sparrow. This information is timely, because it will strengthen the hands of Mr.

Everard, M.P., to whom the Committee of the Horticultural and Floricultural Society has delegated the trust of taking legislative action to prevent the wanton and indiscriminate slaughter of birds. It is true that South Australia has not yet been made a home for the sparrow, but there are many other denizens of the air whose good qualities far counterbalance their bad ones, and who are a most servicable auxiliary to those engaged in cultivating the soil. These it is only just and prudent to save from reckless destruction. The Government have agreed to do what they can to forward the views of the Society, and if the birds do not become a special protégé of the new Parliament, the lessons of experience must be overlooked, and the promptings of humanity and common sense disregarded. —*Adelaide Observer.*

## THE MOVEMENT AGAINST THE GAME ABUSE.

Among the important subjects which divide the attention of electors with the Irish Church, the Game Laws occupy a distinguished place. Many candidates have pledged themselves to vote for their repeal. Thousands of electors have unmistakably shown how anxious they are to get rid of this relic of feudalism. Indeed, no branch of legislation is more clearly due to class prejudices and supremacy than that relating to game. Those obnoxious laws were framed in the supposed interests of the landowner, and ratified by Parliaments representing landed proprietors. Magistrates selected from among landlords inflicted the penalties imposed by their nominees. It is true the tyranny of the Game Laws is not so irrational and grinding now as it was in days bygone. It is no longer indispensable for a man to possess £100 a year, derived from landed property, in order to have the right to kill game. The act which made the sale of game a penal offence has been repealed, and a licence may now be purchased by every sportsman. Yet the prohibition is in force, by virtue of which a landlord can prohibit his tenant from shooting the game bred on the land for which he pays rent, and nourished on the crops produced by his industrious care. In a speech delivered last week before a gathering of agriculturists, Mr. Charles Buxton [given at the time in the *M. J. E.*] passed some just strictures upon the existing system, and made some pertinent suggestions for its improvement. He avowed that he was both a game preserver and an ardent sportsman. He neither expected nor wished to see an end put to the sport of shooting. But he avowed himself unable to defend the system under which, while the vegetable produce of an estate was held to belong to the tenant, the game was claimed as the perquisite of the landlord. Moreover, he considered it unjust that if a labourer killed a hare on the public road he should be liable to be fined or thrown into prison as a poacher, as well as to pay £20 to the Excise for killing game without a licence. He also denounced the legislation which empowered a county policeman to stop and search whomsoever he suspected of unlawfully possessing game. Even worse than this is the arrangement whereby game is treated as a peculiar kind of property, so that when a horse or cow is stolen the prosecutor has to pay his expenses, whereas when a poacher is punished the outlay falls upon the county. He considers it grossly unfair that a landlord's converts should be exempted from rating. With this condemnation of the present law the public, we suspect, will concur more heartily than with Mr. Buxton's proposals for its reform. The gist of his argument is to substitute for the restrictions now in force "a real law of trespass." This is a plausible proposition; but it involves more than at first sight appears. Strictly interpreted, a real law of trespass might mean exactly what the Game Laws now mean. The name would be changed; the trespasser would be sent to prison instead of the poacher; but the community would not gain much by the alteration. Besides, inoffensive persons might find a real law of trespass a great obstacle to their enjoyment. At present it is difficult to inflict a fine on any one

who walks through a neighbour's field without doing any damage. In the future the same act might entail serious consequences. No change in the law should be specially directed towards the preservation of partridges and pheasants. They should be placed on the same footing as geese and turkeys; the same measure of punishment should be inflicted on the slayer of the partridge as of the goose. Indeed, the injury done to the property should be the standard whereby to try the trespasser. This, however, is hardly what game preservers desire when they talk about substituting a real law of trespass for the existing game-laws. With one of Mr. Buxton's recommendations most persons will entirely agree. He thinks what is wanted is not so much fresh legislation as an active resistance on the part of the farmers to landlords who are addicted to the "excessive and extravagant preservation of game, especially of rabbits and hares." He thinks that if the farmers were more outspoken and persistent, they would excite such a declaration of public sentiment as would turn the game preservers from their evil ways. The rich have a right to their amusements; and we should no like to see them debarred from enjoying themselves after their own fashion, provided their neighbours were not injured thereby. It is doubtful, however, if game preserving and its consequences are pursuits which, in the altered state of this country, can be sanctioned by the public. The existence of game implies the presence of suitable conditions, such as an expanse of country sparsely cultivated, and containing few inhabitants. In the marshes of Lincolnshire and the moors of Scotland we find natural arrangements for the breeding of snipe and grouse. But in the highly cultivated parts of England and Scotland game cannot exist save at a serious loss to the cultivator of the soil. The Legislature must take these things into account when dealing with this question. Of course we shall be told that unless an adequate inducement in the shape of game covers be held out, the landed proprietor will desert his estate. This is the stock argument, which has been refuted as often as it is repeated, but which is reiterated as if it were alike novel and unanswerable. No one, perhaps, has ever answered it more effectually than Sydney Smith, when the argument was more forcible than it now is, and his words may be fitly recalled now that the subject is again under discussion with a view to effectual and final settlement: "The privilege of shooting a set of wild poultry is stated to be the bonus for the residence of country gentlemen. As far as this immense advantage can be obtained without the sacrifice of justice and reason, well and good; but we would not oppress any order of society, or violate right and wrong, to obtain any population of squires, however dense. It is the grossest of all absurdities to say 'the present state of the law is absurd and unjust, but it must not be altered, because the alteration would drive gentlemen out of the country.' If gentlemen cannot breathe fresh air without injustice, let them putrefy in Cranborne-alley. Make just laws, and let squires live and die where they please."—*The Daily News.*

## ECHOES FROM THE AGRICULTURAL MEETINGS.

## FROM KENT.

At the dinner of the Chobham Agricultural Association, Mr. C. Buxton, M.P., said there was one subject of very serious importance to the farmers of England on which he should be glad to say a few words. Now, he was a game-preserver. He had just returned from six week's shooting in Norfolk. He was fond of the sport, and he did not either wish or expect ever to see it extinguished. On the other hand, he considered that the law of the land went a great deal further than was reasonable in its support. He would tell them what he thought really was reasonable: That the proprietor of a piece of land, whether great or small, had a right to all its productions—to the live animals that grew upon it—whether bullocks, partridges, cats, or weasels, or whatever else they might be, just as he had a right to its vegetable produce. He was quite sure they could never allow any strangers, who might happen to like a day's shooting, to come and beat through another person's woods or tramp over his fields to kill the game upon them. Whatever happened, the law of the land would have to protect the proprietors of the land in their right to the game that grew upon it, and if they did not have a law in favour of the game, they would have to substitute for it that which did not now exist, a real law of trespass. Few people seemed to be aware that at present any man might walk over any other man's land, so long as he did no damage there, the threats of prosecution were mere bugbears; but if they gave the landlord no protection for his game, they would have to give him that protection which he did not now possess, against simple intrusion. So far he thought a game-law reasonable and advantageous, and he thought too it was perfectly right in this, that if the landlord let his land the tenant became proprietor of the game, unless it was reserved by special agreement to the landlord. But this was where he thought the law went a great deal too far. It was a shame that if a poor man was coming along the public road and he saw a hare and knocked it on the head, that he was liable to be taken up, fined, or thrown into prison as a poacher, and not only that, but he was liable to pay £20 to the excise for killing it without a licence. He would abolish that part of the law, and give to every man perfect liberty to kill ground game, either hares or rabbits, in any way he pleased, so long as they were not upon another man's property. Then, again, he deemed it a shame that if a country policeman thought or pretended to think that if any man or woman had game concealed about them, he might stop that man or woman on the high-road, and search their person to find it. He thought that was a shameful piece of tyranny, and he never voted against anything more heartily in his life than he did against that clause of Sir Baldwin Leighton's Bill. He also thought that this was a great wrong, that game was put on a perfectly distinct footing from all other property in this respect. If a man stole a cow or a chicken the prosecution was undertaken at the expense of the prosecutor, but since the passing of Sir Baldwin Leighton's Bill the prosecutions against poachers had no longer been undertaken at the expense of the wealthy game-preservers, but at the cost of the county, and in some cases that charge formed a heavy item of expenditure. And the law also inflicted another wrong, in that it exempted the coverts from rating. There were other parts of the laws relating to game that ought to be repealed, but he felt convinced that what was really wanted was not so much a change in the law as a bolder purpose on the part of farmers not to permit themselves to be so ruinously over-ridden, as great numbers of them were by the excessive and extravagant preservation of game, especially of rabbits and hares. He believed that if they agitated this question more persistently, if they made their voices heard, and especially at election times, through the length and breadth of the country, the game preservers would be compelled to yield to the pressure of public opinion, and he was sorry that more had not been said on this important topic during the past few weeks.

At STAPLEHURST, Mr. H. BARNES said he would give them two or three of his own opinions. The first question was drainage, for that he thought was the first thing they should consider on taking a farm. They should agree with their landlords that he should find the tiles and they should do the draining; for he believed if they could enter upon such agreements it would be a great improvement to the country, and would be much more preferable than their paying five per cent. for the work being done. He had drained in many places, and suffered great loss by paying five per cent. Then their rents were beyond what they could afford to pay, considering the price at which they sold their products, and their rent was increased by the drainage. Then as to birds, some persons were of opinion that it would be a good thing to get rid of them; but he believed they were sent to protect their crops from the slug and vermin, and if they destroyed them they would be infested with vermin that would cause great damage to their crops. As to timber, he knew their landlords could not cut down all they had, and he should be sorry for them to do so; but their rents would be increased by cutting the timber on arable land, and leaving it on meadow land. With respect to rabbits and hares—which he classed as vermin—he thought the landlords were carrying on a bad system; he considered if they were not to preserve anything, and left it to the tenant to provide him with shooting, it would be much better for both. If it were left to the tenant, he thought he would preserve sufficient game for the landlord, and he would derive a pleasure from his coming to shoot over his land, provided he knew he could shoot over it as well. Then there was another thing: tenants had a great hatred to keepers being placed to look over their farms. They were a perfect nuisance to the farmer; they almost drove him out of a field if they wanted to preserve game there, and that could not produce good feeling between the landlord and tenant. Mr. Barnes then gave as an instance in which a widow, who paid £270 a-year rent, wished to renew her lease, but the landlord raised the rent to £450, and required £200 for goodwill for granting the lease. She, however, refused under those circumstances; but a gentleman came directly and took the farm at the increased rent, and paid the goodwill; but after being there 14 years he said the landlord would not lay out anything in improvements.

Mr. HAYES said that when a tenant laid out money in improving the farm, that ought to be looked upon as so much capital. All improvements made to the farm belonged to the out-going tenant, and if the in-coming tenant or the landlord paid the out-going one the full value for those improvements—which in Ireland would be called tenant-right—then the landlord alluded to would be perfectly justified in asking £470 a-year for his farm; but until that was done he had no right to raise the rent. That suggested the question of having either long leases or tenant-right clauses. There was no reason why a landlord should not have his property improved fairly, but then there was no reason why the tenant should not be fairly remunerated for the improvements he made. Some of the gentlemen on the platform thought that great profits were made out of farming; but he believed if every farmer in the room were to balance up his accounts he would find he had not made anything within the last seven years, as in the last two years he had lost all he had made in the previous five. That he knew was the fact in his own case; and Mr. Barnes even the other day had sold lambs from 16s. to 17s. each.

Mr. BARNES said he had bought lambs at 2s. 6d. a-head, and at Ashford market last week there were several sold at 1s. 6d. each.

Mr. BUTLER thought it wrong for a landlord to raise his tenant's rent in the face of the improvements he had made on his farm. He had laid out on his own farm about £1,000 in improvements within the last five years, and three years ago his landlord had stocked the place with game and raised his rent £50 a-year. He would ask them, was that right? With reference to drainage it should be done if practicable in the summer time, because the land was then dry, and the pores of

the earth were open. He had found where drainage had been done in the winter that it took some three or four years before it answered properly.

Mr. EDWARD BEARD said, with reference to there always being persons ready to take farms at increased rents, that there were more farmers springing up than there were farms, whereas in other trades that difficulty was not experienced. When extravagant rents were paid, however, the landlord reaped no gain from it, but the tenant was ruined. As to draining in wet weather, he thought it did not matter how much plaster was put on the sides of the drains so that the bottom was left all right, for the water came from the bottom. They must be guided by the soil as to the depth, but he believed that deep drainage was advantageous in any soil.

Mr. HAYES said a great number of their farms had not sufficient houses upon them to accommodate the labourers, and they were consequently driven into the villages, which was an evil to them. They had also to walk a great distance in many cases to and from their work in consequence. He remembered speaking on that subject before, when there was a labourer present who lived some three or four miles from his work, and who had taken a prize for working over forty years in the same employ. That man, it was shown, had walked a distance of nearly the whole circumference of the world in going to his work and back. The owner of the farm might call himself a philosopher, but through his not providing proper cottage accommodation the man had walked a distance of something like 24,000 or 25,000 miles more than he would if the owner had simply performed his duty in providing proper accommodation.

Mr. T. REEVES, jun., said he believed landlords' duties were neglected when they allowed the tenants' property to be eaten up by vermin—by which he meant game. It was said that was a question of rent, and it really amounted to that; but then when claims were made for the destruction of property to the amount of double and treble the rent, they were told they did not pay so much, but they lost sight of the amount they lost by the great destruction of their crops by the game.

#### FROM SUFFOLK.

At SUDBURY, Mr. GREENE, M.P., said: At some of these meetings he had talked about steam-cultivation, and he agreed with those who said they had talked long enough, and the time was come to act. In his own neighbourhood a tenant-farmer, and also in another case an owner of the soil, had recently both invested in Fowler's double engine, and he was satisfied the result would be successful. He owed it to steam cultivation that though his turnips did not weigh five pounds each, he had preserved his swedes, though the drought had affected them; still he had a better crop than any in his neighbourhood. He had got all his land cultivated some time back, and had cultivated seventy-six acres in seven days, that is, he had ploughed thirty-eight acres twice over in that time, costing each time (including interest of money, wear and tear, &c.) only 6s. per acre. He was for progress, and so would advocate some relaxation in covenants. He knew an instance now where a man had heavy land and never had a fallow acre, and yet it was never in a better condition; whereas had he been tied to the "four-course shift" he could not have done it.

Mr. DUNCAN said he believed the climate of England was very favourable to the cultivation of beet, far better than Holland, where it had been successfully carried on. The growth had largely increased on the continent and figures were given. To give an idea whether the production and manufacture were valuable or not, he would tell them that this year there would be 15,650,000 tons of sugar at 25s. per ton, 1,950,000 tons molasses, total 17,600,000 tons. The late season had been unfortunate from the drought, still he believed they would have in that 700,000 tons instead of the 600,000 tons of last year. Their friend Mr. Hawkins had ploughed deeper than most, and had a very good root crop. He had found that in countries where the sugar beet had increased wheat had also increased by one-fourth; but to grow good roots or corn they must not merely scarify the ground. But the farmers here had not had a chance yet, as he only brought the subject forward in March last. He believed the thing must go on slowly and by degrees, and they must not hurry it.

Mr. BROWN said: In Kerry a few years ago, he heard of a man there who had built a farm-house, and when he had finished and improved the property his landlord quietly gave

him notice to quit, and the man and his family had not a house to shelter them. He knew of a small holder of seven or eight acres of land, who wanted to remain and improve the farm, and offered to pay any reasonable rent that was asked, that he might live where his father had lived before him. He saw that man and his family (who had been turned out) only sheltered from the inclemency of the weather by a mere hedge, and how could they be surprised at the peasantry not being satisfied? Whatever grievances they might think existed in England between landlord and tenant, it was ten thousand times worse on his side of the water.

#### FROM DEVONSHIRE.

At HALBERTON: Mr. ROACH (Crediton) regretted to say that the parish of Halberton had not received a good character from its clergymen, which was now notorious not only in Devonshire, but all over England. At first, when he heard of what had taken place there between them and their minister, he was charitable enough to think that the Canon had acted on good intentions; but, from all that he had since heard and read, he had come to a different conclusion, and he could not acquit the Canon of acting vindictively. He was confirmed in this opinion when he found the Canon had gone to London, to try to form an agricultural union amongst labourers similar to trades' unions. Now, as an Englishman and as a taxpayer, he must say he did not know of anything that had done so much injury to the country in his time as trades' unions. He might be wrong; but he thought that the effect of those unions had been to lock up capital to drive trade out of the country, and to enslave working men, so that they had not the free enjoyment of their powers of body or mind, but were compelled to limit the use of both to the rules of the union. He liked to see men free agents. Labour was a commercial article worth what it would fetch, according to the supply and demand; and no one ought to be called upon to pay more for a day's work than he could make of it. Their clergymen, however, had been attempting to form a league against the farmers; and now he saw, by the *Mark Lane Express*, that the Canon had been "stumping" the country upon a similar errand. He had been speaking at the meeting of the British Association, at Norwich, on the condition of the agricultural labourer in the West of England. They could read the speech for themselves. He believed it to be full of misstatements; and he was happy to say that only one individual present at the meeting had agreed in it. There were several eminent men present; and one, who was a professed admirer of Canon Girdlestone, said that he thought the Canon's heart was right, but certainly his head was wrong. He (Mr. Roach) hoped that that view of the case was the right one. The only person who agreed with Canon Girdlestone's speech, amongst those who heard it, was Sir John Bowring; and he supposed that Sir John Bowring and Canon Girdlestone had gone about "stumping" for the purpose of degrading the British farmer (laughter). He observed that Canon Girdlestone had been spoken of at Northampton by Mr. Bradlaugh as "his friend." Now the old adage said they might know a man by his friends; and he did not think that this was the sort of company that a minister of the gospel should keep. He then delivered his views of the duty of a parish minister, who ought to make himself acquainted with the spiritual and bodily wants of his parishioners, to instruct the young in their catechism, their duty to God and their neighbour, and to teach them to do their duty in the station of life in which it had pleased God to place them. They could not all be in equal stations. There were different ranks in the world, some might not be satisfied with his station, but it was not one of his choice, he was a small farmer with ten small children—but he tried to do the best in his station. He held under a good landlord. He paid his rent and endeavoured to be satisfied with his condition. Every condition had its advantages and disadvantages. Clergymen should do the work to which they were ordained, and mind their own business. How would it work for the clergymen to come to him and say, "Roach, what business has your landlord with that big house, and so many houses and servants? you ought to have that." That would be wrong; great estates had great responsibilities. He did not want to change places with his landlord, and he supposed his landlord did not want to change places with him. Property had its duties as well as its rights,

and public opinion expected landlords to discharge those duties. He did not envy them. But Canon Girdlestone by stirring up strife between the farmers and the labourers had done wrong. He hoped he would live to see the error of his ways and reform.

Mr. BUCKNELL (Holcombe) believed that every word Mr. Roach had said was true.

Mr. PEARCE had not intended to mention the name of Canon Girdlestone there, or to introduce their parochial differences to that meeting; but the Canon's paper demanded a reply. The Canon had said that the labourer earned 8s. or 9s. a week. Now he had gone through his labour book, and taken out the amount paid to one of his labourers from Lady-day, 1867, to Lady-day, 1868. Although this man received nominally 8s. a week, he actually received, taking all the year round, 10s. a week in money, and with grist corn, convenience for pig, and other things, he received as much as made up the wages to the value of 14s. a week. The labourer was not, therefore, in the poverty-stricken and degraded state which had been represented. Then the statement about the dietary of the labourer was ludicrous and absurd. He altogether denied that anything which Canon Girdlestone had done had had any influence whatever in altering the rate of wages in that locality. He was glad to say that the condition of the labourer had of late years been ameliorated, but not since the Canon had made his onslaught on the farmers of the parish, and nothing he or any other individual could do would influence the rate of wages, for that depended on the supply and demand.

At the dinner of the COLYTON Ploughing Match Sir LAWRENCE PALK said: Within the last few days he had received the most interesting report of the committee of the House of Lords upon the laws relating to parochial assessments, and if he were permitted to go briefly through it he should be able to clear away a great deal of mystification. It had been said that only a certain portion of the funds of this country ought fairly to be rated to the poor. But that was not the case. By the report of a select committee to consider the laws relating to parochial assessments, it appeared that the relief of the poor is a national object towards which every description of property ought to be called upon to contribute, and that the Act of the 43rd Elizabeth, cap. 2, contemplated such contributions; also that it is expedient that all mines should be assessed; that it is not expedient to rate stock in trade. The Act of the 43rd Elizabeth contemplated personal as well as real property. The committee of the House of Lords had not arrived at those decisions without carefully searching the law and taking evidence as to the truth of what they reported. It was very curious that during the 17th century, in the reign of Elizabeth and Anne, no poor rate was levied on what the Scotch law called "Means and Substance," or profits from trade. In 1766, in the 5th year of Queen Anne, there was a celebrated cause tried, the Queen v. Barking. The question raised was whether the farmer was taxable to the poor for his stock as well as a tradesman for his stock-in-trade. The three puisne judges of the Court of Queen's Bench decided that a farmer shall not be taxable to the poor-rates for his stock, and that a tradesman is taxable for his stock-in-trade. Lord Mansfield, on the other hand, in 1775, in the case of the King v. Ringwood, denied that personal property had ever been rated to the poor under Elizabeth. But according to the evidence of George Cornwell Lewis, Esq., M.P., a great authority on these matters, the ultimate decision of the Court of Queen's Bench was that stock-in-trade and personal property are rateable to the poor-rate. They decided that stock-in-trade is rateable, and that farming stock is not. Having thus laid down the law as given by the report which has emanated from the committee of the House of Lords, he would show its effect upon the agricultural interest. By a Parliamentary paper published recently, it appeared that the annual income assessed to the income-tax in England and Ireland amounted to 296 millions, and that only 94 millions of that is included in the poor-rate assessment, under which a tax of 10 millions is annually levied, and therefore the assessment question was one of the most important now before the Chambers of Agriculture. No doubt that on some other occasion he should be given good reason why this 202 millions was not rated. If they came to the principle of the thing he asserted, without fear of contradiction, that by the ancient

laws and practices of this country, all property of every description is rateable to the poor-rate. The subject had been taken up by the Somersetshire Chamber of Agriculture. It might be said very well that you had no right to impose taxes upon the funds because that would be breach of faith with the public creditor. His answer was that there never was any such compact whatever between the country and the fund-holder; and that if even there were one, it had been broken over and over again by the action of Parliament in imposing income-tax equally upon the funds and landed property. But he went a great deal further. He asked why when it was necessary for the well-being of the country that you should have police to protect life and property, that you should have gaols, lunatic asylums, &c.—he asked in the name of justice why all funds should not contribute to one great national object. It might be said that it would be better for this country that there should be a national rate imposed for the maintenance of the poor—one in the shape of income-tax. But he did not think that would be advisable. He doubted whether we had arrived at a proper principle of maintaining the poor. He looked with some regret at the costly public buildings—the union-houses, which were gradually becoming less tenanted than they formerly were. He doubted whether the whole system of poor-law was not wrong from beginning to end. He did not allude to the administration of the poor-law, because that was in the hands of Guardians, by whom it was most fairly and economically managed. He doubted whether the principle of the poor-law was a right one from beginning to end. Was it not worth inquiring whether it was possible by some different management and arrangement the "Able" of the towns could be brought up as useful members of society—trained up to agricultural and other pursuits? He disputed the assertion that the question of the poor-rate was one for the landlords more than the tenant-farmers or the labouring men. If the local taxation on land increased as it had done, the land, however elastic, would not be able to bear the imposition. In common justice he asked why the man who made 50 per cent. by his manufactures or trade was to be freed from the imposition placed upon the land, the profits of which could not be set down at more than 10 per cent. If the tenant-farmer made 10 per cent. by his land, he was a good agriculturist, and successful in his business. The pamphlets written about the wealth of the agricultural population were all bosh. He (Sir Lawrence) had thus shown that when he stated that all property should be taxed, he could not have alluded to the property of the farmers, because they had been exempted by law.

#### FROM YORKSHIRE.

Mr. E. S. CALEY, being severely cross-examined at York said he did not care much about game, and he allowed his tenants to ferret and dig about very much as they liked. They all knew that rabbits were not game, and if a tenant took a farm and nothing was said about them, why they belonged to him; but if a tenant, when he took his farm, made an agreement with his landlord as to rabbits, why he could not reasonably grumble respecting them. No one hated rabbits more than he did, except under a pie-crust; but they could not put down rabbits by Act of Parliament. If he could he would; but they might as well try to put a stop to the female sex. He was much opposed to the excessive preservation of game, and both by precept and example he should discountenance it. (A voice: I would make it unlawful for a landlord to keep up rabbits.) He thought that a landlord had a right to keep rabbits if he chose instead of sheep, for he did not see whom he injured; but, at the same time, he sympathized with the farmers where there was a high preservation of game. He abominated the system of battue shooting, as it was called, when pheasants were turned up as tame as poultry to be shot at, and when old hares cantered about like sheep. Shooting under such circumstances was merely killing—it was not sport. He hated rabbits, and did not like over many hares, but he would not be one to destroy that race of animals. A moderate number of them was reasonable, but a multitude was a nuisance. If the game laws should be abolished, those who preserved highly would be the principal cause of its abolition. (A voice: What's your opinion about the malt tax?) That tax was paid by the poor man, and he should like to see it repealed. If proper economy and care were used, the tax might be repealed, as we could afford to take it off.

The malt-tax was the labouring man's question. He should like to see the labourer have the opportunity of brewing his peck of malt upon his own cottage allotment, for then he would know the sort of stuff he was drinking. As it was, he was forced to the public-house, and he was made a sot from Saturday night until Monday morning. He was fond of good beer himself, and he brewed it with his own hands: but if he was returned for the North-Riding, as he expected he should be, he felt that he should have his brew spoiled, as it would not then be properly attended to. He wanted the labourer, like himself, to brew his own beer, and he measured his neighbour's malt with his own measure.

#### FROM HAMPSHIRE.

At the SOUTH AVON AND STOUR Meeting the Earl of MALMSBURY, who presided, said he had attended a great many of their meetings, but had never seen so large an attendance as on this occasion. When he recollected, he was sorry to say he himself, a great many years ago, what a state agriculture was in in this country, he could not but be astonished at the progress made everywhere at present. There was no sort of similarity in the products of the earth 30 years ago and those which could now be shown in the vales of Avon and Stour. The extraordinary difference in the crops of turnips at this day and the times to which he alluded was really miraculous. At that time when following partridges he was used to walk over these crops, and he saw a great deal more brown earth than green leaves, while the roots were very small, and many of them deformed and twisted, with no regularity about them, whether they were broadcast or sown in rows. But no one would have supposed that human ingenuity could have produced roots like those grown now even under such a system as the present. He saw on his property and those of others, the most magnificent turnip fields any one could wish to behold. They must not suppose because they had made these improvements they had reached the name of perfection. Agriculture was a science which involved other sciences, such as chemistry; they had still much to learn and much to discover. If he might suggest the most useful course for the agriculturist to pursue, he would advise him whenever he could continue it not to remain in his own county, but to go into other parts of England and see what he could glean from the various modes of culture practised there. At the same time he might teach what others were perhaps previously unacquainted with. There was a gentleman present, one of their oldest and most valued members, Mr. Whicher, who would bear him out in saying that when he made a journey many years ago into the north of England to visit a distinguished agriculturist in Northumberland, a tenant of his (the chairman's) brother-in-law, he thought his journey amply repaid by what he learnt. Mr. Whicher had acted upon that system in regard to the very productions which had been alluded to, and which in that part of the country were extraordinarily good. It was impossible to improve their mind if they sat in their arm chairs at home. It was impossible to improve in the management of their farms and estates unless they compared their method of management with that of others. There were some points in which he thought they required great improvement; but that, perhaps, had more reference to the landlord than the tenant. He would say then that the improvement of the labourers' cottages stood first and foremost at this time. It was no doubt a very difficult thing in an entailed estate, where the landlord had only his income to show when managing his estate, keeping up buildings of all descriptions, and maintaining his position before the world. It was a great pull upon him to build cottages, because they were certainly not remunerative so far as interest was concerned; but he would derive an indirect advantage, because the tenant would be able to pick and choose for his labourers more easily. He believed this matter was the more urgent now, as the Legislature had thought fit to entrust the labourer with the franchise in many parts of England, as for example in Christchurch, being an agricultural borough, a great many of the new voters must be labourers. It was fair then, surely, while we gave the labourers a position so important as that, of having the suffrage to return members to Parliament, to give them a status that would raise their feelings. Great waste was occasioned in roofing labourers' cottages with straw. He was determined, except perhaps for an ornamental lodge, he would never have a thatched roof upon his property. He thought there would be no difficulty in carrying this out, be-

cause there was no part of England where there was no clay to be obtained for the manufacture of tiles. He had tried the experiment himself, and found it would be cheaper for the landlord to make tiles.

#### FROM DORSET.

At MELPLAISH Meeting: Mr. JOHN POPE said they had the opportunity at these annual meetings of detailing to each other the amount of experience they had derived during the past year. He would now ask them what had been the results of the season just past? In the first place their hearts were grateful to the Giver of all good, for having blessed them with one of the most favourable seasons for gathering in their harvest which he had ever known. They had also a fine opportunity for making their hay in excellent condition, and he thought the crop this year was of as good a quality as had ever been made. Let them look for a moment at their corn crops. The rule was that their corn was good; the exception was that their roots were indifferent; still, the rule was only proved by the exception. All practical men would agree with him, he thought, that the past season had produced one of the best crops of wheat ever grown. And when he submitted to them the weight per sack, it was an evidence of the beautiful condition in which it had been garnered. Some of the corn which had been exhibited at their show to-day weighed 13 score 4lb. and 13 score 6lb. per sack; and he thought he was right in saying that the barley weighed 11 score 16lb. per sack. He thought this was highly satisfactory, seeing that present prices were remunerative. They all, as cultivators of the soil, and as expecting the reward of their industry and application, liked to see good prices; but they might depend upon it that farmers were never so pleased as when they had a good crop, and were able to sell at a fair and reasonable return. He saw that in the north of England one of the chambers of agriculture had thought it desirable that three questions should be submitted to candidates for Parliamentary seats. One of these was the provision of some security against the recurrence of the cattle plague; the second was the establishment of financial boards; and the third was the repeal of the malt-tax. He thought, perhaps, all of them would be justified in asking those gentlemen who offered themselves to their notice as representatives in Parliament what their opinions were upon those important points. He was truly sorry to see they had not one of their county members present to-day, for he had long held it as his opinion that one of the three could so arrange as to be present down in the west every year. It so happened that they all resided in the eastern part of the county, and a county member in the west was a great novelty (laughter, and voice: "We had better send one up from this part").

Mr. J. GUNDY said he thought it was on the last occasion he had the honour of meeting them that a considerable amount of discussion took place upon that most important question, the repeal of the malt-tax. He believed his convictions were in unison with theirs and with those of all prudent men in Great Britain, when he repeated, and should always endeavour to maintain, as far as his feeble influence would enable him, that the next tax which should be in justice removed from the shoulders of those who bore the already oppressive burden of taxation ought to be the malt-tax. He agreed with that proposal most fully and most distinctly; but at the same time he coupled with it that condition which must meet with their approval—viz., that it is of no use to remove that tax if they were compelled to substitute for it another and equally burdensome impost. Therefore the first tax which ought to be removed from the burden of the agricultural occupiers of the soil, if it could be done consistently, ought to be the malt-tax. He agreed, too, with Mr. Pope in the view he held with regard to financial boards. The principle which he would endeavour to uphold was that every man who contributes to the pecuniary support of any county is entitled to say how these funds should be disposed of. It was of no use for gentlemen to tell them they had not made up their minds how this important question was to be solved, for it was one which involved so little that was doubtful and so much that was just, that sooner or later it must be disposed of, and he trusted it would be carried to a satisfactory issue. He did not hesitate to say that the people who contributed to the support of the various institutions of this country—be they religious or political—were fully entitled to have a fair share in their distri-

bution. He therefore considered it as only right and just that financial boards should be established in all the counties in England, and he believed this would be one of the first questions to engage the attention of the Legislature, as soon as they were again assembled. He only hoped the question would be settled judiciously and effectively, so that it might command the respect and confidence of all who might be included in its operation.

#### FROM CHESHIRE.

In NORTH CHESHIRE: The Rev. W. R. B. ARTHY said he was born and brought up in a farming county. He was an Essex man, and he believed there were few farming counties that could beat Essex. He therefore felt at home when he was amongst farmers. Many a time when he was a boy he had played on Tiptree Heath, which was then unenclosed and unproductive, but which, by the skill and perseverance of Mr. Mechi, had been turned into one of the model farms of England. In speaking of Mr. Mechi he could not but be reminded that there was, after all, no class in England which had better kept pace with the times than the farmers. Some people were good enough to say that farmers never did so well as since they had free trade; that they then took a leap and became more intelligent, scientific, enterprising, and successful than they were before. He did not know how that was, but from what he saw around him, he could hardly say that the farmers looked in a declining state. Exceedingly well they all looked, and exceedingly well they seemed to flourish.

Mr. E. C. EGERTON, M.P., said: Although I may be said in some measure to be connected with the territorial interest, I can truly say that the interests of agriculture and commerce are like twin sisters—they go hand-in-hand together through life. The existence of chambers of agriculture is in my view most beneficial to the interests of the farmers and the interests of the country generally. They bring together, as has been well said by my excellent friend Mr. Arthy, both landlords and tenants. There is no better thing than to bring landlords and tenants in mutual relationship one to the other. People rubbing together shake off the sharp edges which they may have, and the more landlords and tenants unite together the greater will be the confidence existing between them. The interests of landlords and tenants are identical. The interest of the landlord is to let his farm well so that the tenant can live well. So that any good landlord will put his hand in his pocket and assist his tenant to bring in a good return. The benefits of such societies as these are that although landlords and tenants may each have their particular views, here they can interchange ideas and come closer together for the promotion of their identical interests. There is this difference between this and other countries—that there is not that distinction between landlord and tenant in this country as in others. We know that in this country there were feudal laws—laws which were no doubt a great hardship on the tenant. But the good sense of Englishmen has done away with such laws, and there exists the utmost cordiality between landlord and tenant. This was the great point in English character. Long may the day be distant when the farmers of England will listen to the men who tell them that the landlords are opposed to them. I feel that I owe you an apology for addressing you at such length. All that I can say is this, that I am glad that one of my last acts as member for Macclesfield is to preside at this meeting. What strikes a foreigner is the good fellowship and good feeling which exist among all classes in England, and of this I am sure, that so long as that good feeling exists, so long as there is that pleasure on the part of the landlord to meet his tenants—and on the part of the employer to meet his workmen, so long will England maintain that proud position which she has attained among other nations.

The Rev. F. RICHARDSON said he was only known to a few Cheshire landowners, because, comparatively speaking, he was a stranger amongst them. But the few to whom he was known, thoroughly represented the agriculture of Cheshire. He believed they were gentlemen who wished to live and let live. This was the first time that he had attended a meeting of this Chamber, but he was not ashamed to be present, because he could honestly say that he came there to enunciate a principle. He wanted to come to something practical to bring those who were candidates for Parliamentary honours to state what they would do to relieve the farmers from the injustice under which they were labouring with respect to the Cattle Plague Rate.

He hoped the members who were present, and those who were absent would receive the suggestion which he made in a kind and friendly spirit. He believed, however, that they had more regard for their own honour and their own feelings than for the interests of the tenant farmers of Cheshire. He was not speaking of Conservative members only, but he declared that it was the duty of the members for the county to introduce a bill to relieve the farmers of Cheshire from the iniquitous Cattle Plague Rate. What he intended to propose to-day was this. He hoped it was not unfair or unreasonable. It was that the future representatives of Cheshire should pledge themselves when they got into the House of Commons to introduce a bill to remove the crying evil of the Cattle Plague Rate. He cared not who the representatives might be. They had a crying injustice, and a crying injustice of which they complained, and of which he would complain as long as God gave him health and strength. He wanted every gentleman who should be returned for Cheshire to pledge himself to bring in a bill to have this question fairly and fully discussed in the House of Commons. He did not want gentlemen who stood on platforms here to give their votes in silence in the House. It was a crying injustice, and he wanted them to speak and defend the interests of the farmers of Cheshire. The manufacturing and agricultural interests would cry shame on their representatives if they allowed this county to be saddled with £270,000, when they knew that the cattle were slaughtered for the benefit of the nation at large. They might ask him where would he put the burden. Speaking individually, he said he should put it on the Consolidated Fund. All that he wanted was that the question should be fairly and fully discussed. The farmers of Cheshire would forgive the past if their representatives would now do the best for their interests.

Mr. W. J. LEIGH said that since he came into possession of his property he had always been on the most friendly terms with his tenantry. In reply to Mr. Richardson he would say that if returned to Parliament he would not pledge himself to any measure such as he had indicated. He considered his honour was at stake, and if the constituency had not faith in him to do that which was for the good of the county, he would say at once he would rather not go. Mr. Richardson seemed to think that the landowners did not feel the effects of the Cattle Plague Rate as much as he and his friends. He (Mr. Leigh) maintained that they did, and he should always be willing to do his utmost to get rid of the Cattle Plague Rate. But he told them frankly that he would not be bound to any particular line of action on that subject. If this question had been put to him at a public meeting, he would not have objected to it; but he did object that at a gathering such as this, gentlemen should be requested if he did not give a certain pledge, not to vote for him. He did not think it equitable fair. If he was to be their representative, they must trust him—they must trust what he said, otherwise he would rather not be their representative at all.

Mr. JOHN MAY thought that perhaps Mr. Leigh had misunderstood the Rev. Mr. Richardson's remark. Mr. Richardson did not wish to extort from the candidates any improper pledge, but knowing how strongly Mr. Richardson felt on the subject, he was not surprised to hear him refer to it. He (Mr. May) believed that if this question was brought before the House of Commons, they would be able to convince the members that their claim was a just and equitable one. Could it be said for a moment that cattle were slaughtered for the benefit of Cheshire? It was for the benefit of the whole kingdom, and was it to be said that in addition to their losses the Cheshire farmers were to submit to pay compensation? It was monstrous. One solution of the difficulty was this, that instead of paying the rate in thirty years they should pay it in sixty years. This he believed would afford the farmer very great relief.

Mr. JOHN BUXTON said that in his opinion tenant farmers occupied the most important position of any class of persons in the State. He maintained this because the tenant farmer was connected with the source of all wealth. Dr. Adam Smith said labour was the source of all wealth. There never was a greater mistake. Labour was only one of the three elements which were necessary to make wealth applicable, namely, skill, labour and capital. It was remarked by a French philosopher that the earth was the source of all wealth, everything which exists, no matter in what shape or form, is derived from the

earth. The earth was an inexhaustible fountain of wealth. This fact should be thoroughly understood. If we took a survey of the globe we inhabited, we should find that everything was governed by fixed laws. Money was only the representative of wealth, but the agriculturists were really the wealth producers of the country, and the greater amount of produce they could raise the better they were.

Mr. EGERTON admitted that Cheshire was visited with a gross act of injustice by the Cattle Plague Rate, but knowing all the circumstances he did not believe that at the time referred to it was possible that any other course could have been adopted than that which then was taken. If the case of the Cheshire farmers was not put properly before the House of Commons it was not the fault of the members. There could be no doubt that the Cheshire farmers sacrificed their cattle for the public good, that they suffered great loss, and for that loss they were entitled to compensation. That was a case which ought fairly to be put for the consideration of the House of Commons, but when Mr. Richardson asked the candidates to bind themselves he told him fairly that although he would advocate their interests, and do everything he possibly could for them, he declined to be dictated to in any way whatever. He should do his best as an independent member of Parliament. He had had seventeen years' experience, and he thought he had their interests at heart. His feeling was that the Cheshire farmers had been visited by an injustice and his great anxiety was to get that injustice removed. The representatives of the county were certainly not insensible to the sufferings and injustice under which tenant farmers of Cheshire laboured. Their interests were each the same. There were members of his family who had suffered by this Cattle Plague, and he did not want Mr. Richardson to tell him that it was an injustice, still less did he wish to be pledged upon it. If he went to Parliament he should go to exercise his judgment and talents in the best way he could.

Mr. RICHARDSON said that as Messrs. Legh and Egerton were about to attend another meeting that night he intended to be present and would introduce the subject again.

Mr. EGERTON : That is the proper place.

Mr. G. W. CLARKE said : With regard to the practical suggestions of Mr. Richardson, coming as they did from an unexpected but very welcome guest, he for one must express his gratification that the subject of the Cattle Plague Rate had been pressed on the attention of Mr. Egerton and Mr. Legh. He was quite sure Mr. Richardson was sincere and by no means desirous of embarrassing those gentlemen in the Chamber. They were all much obliged to Mr. Richardson, and all had full confidence in their present chairman and vice-chairman. They had the assurance of Messrs. Legh and Egerton that no effort should be spared to obtain redress from an absurd and unjust piece of legislation, and those assurances would be carried out at the proper time. He thought the present occasion very fitting for alluding to things that were of the greatest interest to farmers ; and when trades' unionists could with impunity ask and obtain pledges from candidates of every shade of politics, on all sorts of points, he (Mr. Clarke) knew that no candidate would feel aggrieved when he was asked by a Cheshire clergyman or a Cheshire farmer to assist in the removal of an evil that ought not to have been created.

JOSEPH WRIGHT Esq., the ex-mayor, said : He thought that at meetings such as this they should endeavour to come to something practical, and instead of drinking toasts should discuss some given subject from which useful information might be derived. There was particularly the question of education amongst the agricultural classes. He hoped that before long they would have educational classes established in this county, and agricultural colleges as well as agricultural lectures delivered in the various villages throughout the county by such men as their valued friend Mr. Buxton, who would go through every village and hamlet, and instruct the youth of the county. Not until this was done would they have Cheshire agriculture assuming a practical form. This was the case with the silk trade, and he hoped the suggestions he had made would be carried out amongst the agricultural community.

The CHAIRMAN said : The little episode which had passed between Mr. Richardson and himself was like lovers' quarrels, they were better friends for it. He (Mr. Egerton) happened to know something of the House of Commons, and knew what it was to bring in a Bill. As a member of the Government,

he could not bring in a Bill except as connected with his department, and he did not think the Cattle Plague Rate came within the scope of the Foreign-office.

#### FROM DEVON.

At DAWLISH : Sir LAWRENCE PALK referred to the hedgerows. In some parts of the county, though not in their immediate neighbourhood, he had seen the bushes on the hedges extend more than a dozen feet on each side of the hedge. Now in the North the hedges hardly occupied four feet, which it must be admitted was a very great gain to the farmer. When he had previously spoken of this he had been told, "Oh, we require shelter," but the very worst shelter they could give to any animal was a place where that animal got all the droppings from the bushes. In addition to this, those wide hedgerows were the very nests of weeds. By keeping those hedgerows within proper bounds the land would be improved, and every farmer who so managed his estate as to increase the growth of his crops yearly was a benefactor to the country in which he lived. All were more or less acquainted with the condition of the agricultural labourer, and he was quite prepared to admit that in many parts of Devonshire it was not what it should be, at the same time he held that Canon Girdlestone was not justified in making such sweeping charges against them throughout the whole of the county—and he certainly could not be well informed or else he would not have said what he had. He was aware it was not customary in this county to give as high wages as in the North of England. In the first place the hours of labour here were very different from what they were there, and there was also a corresponding difference in the price of food, and what was even more remarkable, in Lancashire—a county he was well acquainted with—a labourer had nothing but his cottage. Here, on the contrary, they worked fewer hours, food was cheaper, and in most instances they had a good sized garden attached to their cottage. This made a material difference to the labourer ; for, frequently, the garden produced sufficient vegetables to nearly maintain his family. There was also a similar striking difference between the two counties as regarded task-work, &c. He maintained that the labourer here was not oppressed, as Canon Girdlestone would have them believe. He had himself always urged the interests of the labourer, and he believed it was to the interest of the agriculturists that they should make him (the labourer) as comfortable as possible. Good dwellings and cleanliness were most essential, not merely for the welfare of the labourer, but for the interest of the rate-payers, because if a man fell ill he frequently fell back upon them for support for himself and family. He would not enter very deeply into the question of education unless he should be considered as touching on political matters, but he thought his friend Mr. Wade would agree with him that under the present system it pressed very hard on small parishes. At present, unless a parish was sufficiently large to support a certificated master, it did not receive any grant from Government, although it contributed its quota towards it. He regarded that as being extremely unjust. For his part, he would like to see State education paid by results, no matter how or where the education was obtained.

At HALBURTON : Colonel ACLAND said that he had seen in the *Journal* of the Royal Agricultural Society a remarkable paper of great importance on clover as a preparatory crop for wheat. He had often said at farmers' meetings that the practice of farming was in advance of the science. He remembered meeting a gentleman, an educated man, and one of great ability in that neighbourhood, and he heard him say to a body of practical gentlemen that of course high education was out of place for the labouring class, but for the practical farmer education could not be too scientific, because in those days scientific, and only scientific, farming could pay. He bantered his friend for this opinion, hoping that he would take an estate and show how scientific farming paid, for as far as experience went it was not very paying. He went on to say that the science of agriculture was really not able fully to explain what farmers were actually doing, and it was by no means in a position to lay down practical rules to override the ordinary experience of farmers. In the article which he had been reading that day he found an explanation of a fact which, no doubt, was well known to many of those present in that room. It was some fifteen or twenty years ago, that he was engaged in laying the foundation of the Bath and West of



England Society, in which work he was assisted in the most important manner by Mr. Kidner, a farmer living near Wellington, whom, no doubt, they knew. At that time Mr. Kidner called his attention to the fact that clover which was allowed to run to seed was a better preparation for wheat than the ordinary clover crop. That was a fact generally testified to by practical farmers. It seemed at first sight at variance with the common opinion that such a process had a tendency to exhaust the soil. Now in the article to which he had referred, Dr. Voelcker, who had been chemist to the Bath and West of England Society, but was now promoted to be chemist to the Royal, had brought out a complete explanation of the fact. The clover crop—whether getting it from the air or otherwise was not certain—contained a great deal of that very valuable article named nitrogen, and it appeared that this passed to a great extent into the intricate roots of the clover; and also the quantity of leaves that fall off the plant in the process of seeding caused an accumulation of nitrogen on the soil, which was so essential to a good corn crop. Here was a remarkable instance of science coming to confirm practice, and by explaining practice, helping them to turn it to yet better account. The same article showed a case in which practice was wiser than theory. He must tell them, however, that he believed in theory—that was theory built upon facts, which was the only theory that sensible men would care for. The case he referred to was given as follows: “Many years ago I made a great many experiments relative to the chemistry of farm-yard manure, and they showed amongst other particulars that manure spread at once on the land need not there and then be ploughed in, inasmuch as neither a broiling sun nor a sweeping dry wind will cause the slightest loss of ammonia, and that, therefore, the old fashioned farmer who carts his manure on the land as soon as he can and spreads it at once, but who ploughs it in at his convenience, acts in perfect accordance with correct chemical principles involved in the management of farm-yard manure.” From that they saw that the old practice, in this respect, was in accordance with the very best science of the day. He would not give them a lecture on chemistry, but he might say that the practical good which science had done them was in making them thoroughly well acquainted with what they wanted in manure. It was now a man's own fault if he were cheated by the manure merchant. The first rule was to go to a respectable man; secondly, pay a fair price—don't attempt to get it too cheap; and thirdly, of all the manure they used, put by a bottle of it, sealed up and locked away, so that if anything went wrong they could have the bottle of manure examined and tested for its quality. He remembered asking a coffee dealer of Taunton how to get good coffee—the merchant replied, “First buy a good article, and then use plenty of it.” So of manures—they should buy a good article, at a reasonable price, and use a good deal of it. At the same time, there were evils arising from over manuring, which the article he had alluded to pointed out. In fact the more they advanced in the science of Agriculture as in that of Medicine, the more they learned to be cautious about laying down positive rules.

Mr. WALKER said: Experience showed that the success of wheat after clover was greater after mowing the crop than after eating it down. That seemed inconsistent with the ordinary rules of farming, for what they eat down of a crop they generally calculated was put back into the soil by the droppings of the animal. But it happened in the case of clover that if they nibbled it off by stock, they prevented the growth of the deep carrot-like root into the soil, and which afforded the favourite food of the wheat plant, and induced instead a growth of fibrous roots, which were comparatively of little use. He believed that this was Mr. Nesbit's theory, and no doubt Professor Voelcker's investigation confirmed it, and had afforded additional reasons for the growth of wheat after clover.

#### FROM NORFOLK.

At REEFHAM, Mr. T. SAVORY, jun., said: There is one great drawback under which this society labours, and from which many others are free; it is the insecurity of tenure which prevails in this district. We are constantly told that property has its duties as well as its rights; and on looking at this question (possibly with that dulness of intellect which is said to characterize the farmer) we are apt to think that whilst its rights are secured to it by the laws of the land, its duties must ever remain dependent on the feelings of con-

science which influence the proprietor. Still, I believe, there are few who do not recognize a care for the welfare of the peasantry upon their estates to be one of the duties devolving upon property. Now, however much it may shock our feelings to admit it, the stubborn fact remains that the main-spring of the majority of our actions in life is self-interest; and I maintain that one of the great duties devolving upon property is neglected if the proprietor fails to make it the interest of his tenant to raise the condition of his labourers; and this cannot be said to be fulfilled where a system of year's tenancy prevails. A yearly tenant naturally looks upon his labourers as so much bone and sinew necessary for the cultivation of his occupation for one year, and no more; he can have no permanent interest in the education of the lad, so as to make him a skilful labourer, or a more useful member of society, for he knows not how soon some unforeseen difficulty may occur, by which he may be removed from his holding, and his successor be appointed to reap the benefits of his endeavours. And I fearlessly assert that it is hopeless to look for improvements which might naturally be expected to accrue from the operations of this society, unless the proprietors are sufficiently influenced by their sense of duty to the peasantry on their estates, to give their tenants a permanent interest in their improvement. I believe these points are worthy of the consideration of all those who have the welfare of the society at heart. In conclusion, let me offer a few general words of advice. To the labourer I would say, “You have a valuable commodity to dispose of; carry it to the best market; the whole world is before you; but having found a good customer give him full measure—that is to say, a good day's work for a good day's wages, and seek to fulfil the conditions of life in which you are placed by earning your bread by the sweat of your brow, rather than exist upon your master's charity.” To the tenant I would say, “Your duty to your family forbids you to expend your capital and energy in the improvement of another man's property without the security of a lease; you have a right to demand such security; and having obtained it, and thus gained a permanent interest in the improvement of the moral and social condition of your labourers, endeavour by precept and example to set forward this great work.” And to the landlord I would say—

“The ills that ruin Ireland be sure you shun,  
And keep at home—there's plenty to be done.”

Mr. COLLYER said: The observations which had been made by Mr. Savory, he (Mr. Collyer) thought were well worth attention, but in casting over in his mind what he should say, he had been thinking how far he ought to go in introducing the subject which he was about to do. He thought it was hardly within the province of this agricultural association to enter into a discussion upon the relations of landlord and tenant. He should think that that kind of relationship which had been mentioned was not a case of common occurrence within this neighbourhood.

The President, Mr. E. FELLOWS, thought they must all regret that there should be a feeling of independence of one class above another. They would agree with him that there was no such thing as independence. The agriculturist, the landowner, the landlord and the tenant, the workman and the labourer, were all dependent. What was the use of a landowner having thousands of acres without tenants? What was the use of tenants without labourers? The object of these associations was to promote the happiness, the welfare, and the prosperity of the labouring class; and by promoting their happiness and their interest, we were at the same time promoting our own. From what did this spirit of independence arise? He had been told it was because they were giving the labourers an education. He was perfectly ready to admit that the standard of education was in many instances carried too high. In our agricultural districts we did not require so high a standard of education as was required in the manufacturing districts; but what they did require was that education which would teach the people to know right from wrong. If education in the labourer was to be further increased, then he should say it was being carried too far, and would place the labouring population out of their proper sphere, and not be for their benefit. Then, again, he had been told that it would be far better if the education of the people were taken away from those who had the looking after it, and given to other people. That was a very difficult question, and he should be very sorry indeed if the time should come when education should be taken

out of the hands of those whose duty it now was to look after it. If once they were tempted to destroy that good feeling between the landlord, the yeomen, and the labourers, in the promotion of the education of the lower orders of the people—if once they checked that good feeling which now existed amongst the clergy towards the laity, and took away from them the education of the lower orders, he (Mr. Fellowes) believed that it would fall. But whilst they were talking about the education of the labouring classes, they must not forget that there was also another class to whom he believed education was as necessary, and perhaps more so than to the labouring class; and that was the middle class. The education provided for that class was of so expensive a kind, that they really could not afford it, as he (Mr. Fellowes) had been told time after time. Nothing is being done for the middle class, and unless something is done for them, he believed they would find that the lower orders were getting the better of them. With regard to the fixity of tenure which Mr. Savory had mentioned, he (Mr. Fellowes) had formed an opinion, founded upon practical experience, and he must say that he was not in favour of granting leases to tenants. He had been in the possession of property for many years, and he was of opinion that fixity of tenure was best maintained by a good understanding between landlord and tenant. On his estate in Huntingdon, he could boast of having tenants of 70 and 80 years of age, who had lived all their lives upon their farms. Some landowners would say, they must get rid of their old tenants and have young ones, thus infusing fresh blood on to their land; but he (Mr. Fellowes) would rather cut off his right arm than get rid of his old tenants. He was not, however, prepared to say that a tenant was not entitled to compensation for his unexhausted improvements, but, on the contrary, he believed he was fairly entitled to it. Such were his opinions, and he could not, with his experience in the management of an estate, pass by what had been said without saying a few words upon it.

#### FROM SCOTLAND.

At CARRICK, Mr. F. T. B. KENNEDY, jun., said there has been a new feature among the roots exhibited, in the shape of sugar-beet, contributed by Mr. Taylor, of Dunure Mains, Mr. Hannah, of Girvanmains, and also by my father; as well as specimens of the sugar made from it, sent to my father by Mr. Duncan. If you will allow me I will read you a letter about it, from Mr. Duncan, who is a sugar-refiner in London, which will tell more than I can. The letter, which is dated 10th September, says:—"The longer the roots are in the ground the better; but they must be pulled before you have any severe frost. This is the time for maturing the sugar in the plant, and the quantity goes on increasing till the end of November. You will notice some of the plants are green, and some rose. The great drought we had here has told against the beet. Since the roots were planted the ground in Suffolk has never been fairly wet. . . . However, the sugar-beet is the best crop the farmers have got, and although the quantity will be small, the roots will be very rich. I had two examined a fortnight ago, and one contained 9.56, the other 10.30 of sugar. This being the case, I will allow the farmer about 24s. per ton, instead of 18s., and this may, perhaps, induce him to go into it more largely next year. If carefully cultivated, I consider still it will be a most profitable crop. My manager fitted up a factory in Russia. He said the climate was bad—very wet and cold—and the soil poor; yet the factory is doing well." Surely, if this beet can be grown in a country like Russia, it can be grown in Ayrshire; at least it has been thought worth while to make the experiment. According to all accounts it appears as if it would be a great source of profit to those who grow it, as well as a great saving and benefit to the population. It would take too long to go into all the particulars of the proceedings at a meeting held in Suffolk in the beginning of this year, as to its introduction into England; but I have the report with me, and shall be very happy to give any one who wants it all the information I can. There are few farmers who have not some grievances to complain of, and even our Carrick farmers are not exempted; but they put heart and soul in their endeavours to get them removed, and I sincerely hope their exertions will be successful. There are two, I believe—one of which, though the cause is small, is productive of serious results and much loss. I can imagine nothing more depressing and aggravating to a good tenant than when he has been at an immense deal of trouble and expense to prepare the

ground, and the crops are beginning to grow, to see the fruits of his labour brought to nought by being destroyed by hares and rabbits. This most serious grievance, I hold, cannot be too soon removed, in the way that may be considered best; but it must not be neglected. On the other grievance, the Law of Hypothec, I am not able to speak so decidedly, there is so much to be said on both sides; but of this I am quite certain, that when a law is found to be oppressive by a set of men with the intelligence, the capacity, and the experience of the farmers of Ayrshire—when it is looked upon by the community as a piece of legislation which favours one class at the expense of another, it ought to be and must be altered. The just rights of the landlords must be protected, but so also must the just rights of the tenants and merchants. I cannot doubt that the resolution shown by the farmers on this point will in the end be successful; for all that is founded on what is just, and which is sought for with firmness and honesty, is always sure to be so. When I was a boy, and first had the happiness of seeing my own home, I remember how much I liked to hear a saying familiar to all Ayrshire men, by which the west was divided into districts, each having a distinct character:—

"Carrick for a man,  
Kyle for a coo,  
Cunninghame for butter and cheese,  
And Galloway for 'oo."

Now, these distinctions no longer exist, and Carrick unites in itself the merits of all, though as for Galloway and wool I can say nothing, as we have no prizes for fleeces. Cunningham does not excel us in cheese, nor in butter, to judge by the excellent samples shown this day; and as for a cow, where are more splendid animals to be found than are grazing in the rich pastures of Carrick? Their extreme beauty has made them be sought for over the whole country; and it is a pleasure to find that when sent to England, as some were last year by my father, they were the admiration of the neighbourhood, and that people came from a distance for the mere pleasure of looking at them.

At the KILMARNOCK Great Cheese Show: Mr. EASTLEY one of the Judges, said, he always knew the Scotch were great people. Scotland was renowned for its theologians, poets, and philosophers, and now they had to add their cheese-makers. But cheese-making was becoming one of the fine arts: it was more than that, for whereas they could only admire the beautiful pictures, they had to eat the cheese. There are three or four great results in regard to cheese-making in which they were making rapid progress. Cheese appeals to three of the senses—to sight, to smell, and to taste. With regard to the appearance of the various samples, they did very great credit indeed to the makers. And in regard to the quality of many of the lots, he considered they were equal to many of the best English cheese which were in the regular market. The only way in which they could obtain their object to take a first place, was to have the one standard before them, and that was perfection. Appearance was great, quality was great, but he thought, on the whole, flavour was the greatest qualification of fine cheese. Nothing that is unpleasant in the mouth will ever pass muster so far as cheese is concerned, or any other article of consumption. He urged them to aim at appearance and quality, but withal let them try to aim at flavour; and when they had combined these three points, they would stand second to no place in cheese manufacture. He might state to such a height had they attained in this art, that in London, when a fine piece of Cheddar cheese was exhibited, the dealers would ask "Is it Scotch?"—showing that they were making great strides in that favourite article of consumption, Somerset cheese. He did not think in going round the tables the judges could say that there was any cheese which could be really condemned; and he trusted failure on this occasion would not prevent the competitors from trying again. Of course they had competitors in the field. There was the old county of Chester, just recovering from the effects of the cattle plague, and where the standard of the farmers was perfection. Then they had the Cheddar cheese, the principle of which they had adopted for the make of their Scotch cheese, and which commanded at present the highest range of price and of appreciation. Then they had the American cheese—a very strong competitor. The flavour of the American cheese this year was not pure; so here was a chance for them.

But still the quantity of American cheese imported had a great effect on the price of the article. Since January last there had been no less than 788,373 boxes, or about 24,625 tons of American cheese imported; and it was only by superiority of quality that they could stand against such competition. He was satisfied that if Scotland would only go forward in the march of improvement she had begun, she might take the highest place besides these English counties in the make of cheese. He could not forget that he was now in the land of Robert Burns, and he recollected two lines of that great poet—

"Rouse up, my lads, put on your mettle,  
And get auld Scotland back her kettle."

He would appropriately parody that, and say—

"Arise, my friends, fulfil your fate,  
And let your name for cheese be great."

Sir JAMES FERGUSON said: There could be no mistake about the cheese, and there was no mistake about the choosing of the cheese. They had received from competent judges a description of the show, which proved that the improvements in the highest branch of agriculture had been widespread, and they also proved that a great improvement had been made in the quality of the important commodity. There were peculiarities of climate to contend with; and subject as they were to years which rendered the growth of serial unprofitable, and liable as they were to accidents among their live stock, the manufacture of cheese formed a never-failing industry, and he believed every year there were more and more farmers depending upon cheesemaking to pay their rents. Hence it had become the great staple commodity of agricultural manufacture.

#### FROM IRELAND.

At BANDON, Lord BANDON said, looking back at the last twenty years, it was pleasing to see the great improvement there was in the country. They who were resident continually here were not perhaps good judges of this; but any one returning here after a lapse of years could not fail to see the great improvement that had been wrought—so much so that he would scarcely know the face of the country. On a former occasion that he addressed them they had to urge on the farmers the necessity of growing green crops, but now there was scarcely a farmer who did not grow them—in fact, they no longer wanted to urge the matter upon them; still, although great improvements had been effected, there was room for much improvement in farming. Under the blessing of Providence, they had had an abundant harvest—they had been mercifully preserved from the cattle plague; and while in England the country had been burnt up, and the hay and turnips deficient, the show of roots at their exhibition that day proved that here they had not suffered from the drought which prevailed in England. In the western part of the county, and in others in which he lately was, he had seen great improvements—drainage well carried out, better crops, new houses springing up in every direction, and consequently the greatest prosperity in every direction. What they were most deficient in was railway accommodation. If they could have railways carried throughout the country they would be productive of the greatest benefit, affording as they would the easiest means of transit to the seaports of the products of the western parts, for which there was an unlimited demand in England; but as regarded farming, no country was really prosperous that depended solely upon agriculture, and they should endeavour as much as they could to combine with it some other means of employing the people. In Cork there were the Flax Spinning and Weaving Company's manufactory, and that of the Messrs. Wallis and Pollock, and Mr. Nash's cotton factory; these were the means by which they should increase the wealth, the happiness, and the prosperity of the people. They saw it sometimes stated in the English papers that they were poor, miserable, and distressed; but he had not seen anything in the country to warrant that assumption. I believe that a resident proprietor is one of the greatest blessings to Ireland; but in my own case I should not have said it had I to claim any merit for being so. I am deriving the benefit of resident proprietors before me, and which left me no excuse for being absent from home. I only wish that there were more resident proprietors amongst us, because I believe that, whatever politicians and others may at the present day, the extinction of resident proprietors would be the greatest misfortune that could happen to us. To me it is the greatest pleasure to live amongst you, and amongst such kind friends as those by whom I am surrounded. It is a great pleasure

to me to have again to preside, after the lapse of so many years, at the meeting of our local agricultural society. I believe that if we all pull together, throw aside all matters upon which we differ, and cordially unite upon those on which we agree, we shall have a united and prosperous country. I think if you look at the statistics connected with the three unions belonging to our society, you will find that we are progressing daily in the increase of our produce and in every improvement. To-day there were valuable agricultural machines shown, and I believe nothing would do more for the farmers of this country than their increasing the employment of machinery amongst them; and even if one farmer is not able to purchase an expensive implement, what is there to prevent half a dozen farmers uniting for the purchase of the implement and using it alternately? Looking back at the statistics of the west riding of this county, I find that matters have been improving. We have a greater number of sheep in the country, and nothing is so beneficial as sheep farming to the land we have; but while sheep have increased, the cattle remain about stationary, but the quantity of land under tillage has increased. I believe the farmers are more and more getting into a system of rotation of crops, which, after long experience, is found to be the only true secret of farming in this country. As regards the quantity of produce within the three districts we have now united in this society, I may mention that the statistics show that there are 4,864 acres under wheat, 18,431 under oats, 3,427 under barley, 15,191 under potatoes, 6,056 under turnips, and 346 under mangels. It is the greatest pity that farmers do not cultivate more mangels. In England in all the maritime counties mangel wurzel is greatly cultivated, and instead of there being in this district but 346 acres, 3,460 would be what we ought to grow. There are some statistical facts connected with this district which show how much better off we are than other parts of Ireland. We have not the same subdivision of land which is the ruin of a large part of Ireland. In the Bandon Union the farmers under 30 acres number 695; but, looking to the west of Ireland, I find that in Swineford there are 7,667 farms under 30 acres; in Strokestown, 2,311, in Tuam, 5,297; and in the comparatively rich union of Tipperary there are more small holders under 30 acres than there are in the three unions which comprise this district. Then, as regarded the population of these three unions, only half are dependent solely upon farming for their means. The whole population numbers 72,948, of whom 6,160 are holders of land, making, at the rate of five to each family, a population of 30,830, so that there is this large number who are not dependent solely upon the country, and it is for their benefit we wish to extend the manufactures and increase the resources of the district. He did not see why farmers in the outlying towns should not send their milk into the cities. He looked upon the extension of railways as of the first importance, and hoped that all would be united, north and south, east and west, for the benefit of the country, exchanging their produce and filling their unrivalled harbours with the shipping of the world.

**SHOEING HORSES.**—Among the reports on the Paris Exhibition is a chapter on a new system of shoeing horses. Its inventor, M. Chaliar, contends that the present shoes destroy the horse's foot, and substitutes for it an iron band, let into a rectangular groove scooped from the outer circle of the horse's foot. This band is fastened with seven rectangular nails, driven into oval holes. The sole of the foot and the frog are thus allowed to touch the ground, the horse never slips, and never gets diseases of the foot. The new shoe has been tried by M. Laguet, a large jobmaster in Paris, and has reduced lameness in his stables by two-thirds. The omnibus company, moreover, have shod 1,200 horses, and speak of the improvement in high terms.—*Spectator*.

**DESTROYING WOOD-LICE IN POTATO HOUSE.**—These troublesome pests are partial to potatoes; therefore we should advise active measures to be taken to destroy them. If they are abundant, thousands might be destroyed by smothering them with your feet. If boiling water can be poured into their haunts without touching the potatoes, it is desirable. We have caught thousands in flower-pots filled with dry hay, and laid on their sides, once a day lifting the hay out of the pots, and shooting the wood-lice into a pail of hot water. Whether they would care for the pots in the face of the superior attraction of the heap of potatoes with the covering of hay, is a problem which can very soon be solved.—*Hibberd's Gardener's Magazine*.

## THE POLITICS OF AGRICULTURE.

At the dinner of the Worcestershire Chamber of Agriculture, Lord Lyttelton noticed a statement by Earl Fortescue in deprecation of the intrusion in moments of political excitement of party politics, and said he saw something different in an important manifesto he held in his hand. It was the address of the Central Chamber, who spoke with great authority, and in a tone of superiority. They appeared, among many other chambers, to be affiliated to the Central Chamber, which was constituted of members from local bodies. They recited a number of very proper and important questions to which the attention of the local associations ought to be directed, and called upon the members in the plainest terms not only to promote attention to the subject in Parliament, but to endeavour to secure the election of representatives, in all parts of the country, favourable to the views of the Chamber. If they could have their own candidates, whose paramount object in being members would be to promote the objects of the agricultural interest, it would be a different thing, but they knew they could not do that. The candidates would be supported according to their party principles, and it would be obviously impossible for them as an association to take a part in promoting elections without becoming in the fullest sense a political and partisan body. Several agricultural associations had been acknowledged as political bodies; they represented Conservative opinions, and took their place among the general political machinery. He was not prepared to argue they were wrong in doing so. If agricultural chambers followed this example—if they followed the injunction of the Central Chamber—they could not expect persons of all political parties to take part in them.

Mr. KNIGHT, M.P., cautioned them against what was known as humbug in the House of Commons, when a man was anxious to become a great farmers' friend, and said he would vote for the repeal of the malt-tax. It was utterly impossible as Parliament was now constituted to repeal the tax, and men gained a cheap popularity by saying they would vote for its repeal.

Sir THOMAS WINNINGTON, M.P., had looked to the statement issued by the Central Chamber, and there was something in it which would bear the construction Lord Lyttelton put upon it, such as the question to members which way they would vote on the subjects mentioned. He was quite sure it was not the intention of their Chamber to exercise the slightest pressure upon the members of Parliament, but there were many subjects which would soon come practically before Parliament, and he knew of no body more suitable to discuss them than that Chamber.

Lord BEAUCHAMP said: They must be fully sensible that the tendency of modern legislation was such as to require very great vigilance on the part of the agricultural community. At all those meetings he had heard a great deal about abstaining from party politics, but he wished those who talked most would observe the rule they laid down; a person got up and said he would not touch upon party politics, and then made a violent political speech. He was not going to do anything of the kind. He had his own opinion as to what party politics were, but all the questions spoken of, and more particularly those affecting taxation, were more or less political questions. He differed from Lord Lyttelton in regard to what he said on the first paragraph of the address of the Central Chamber. It was not said they were to secure the return of members to sit on one side or the other, to turn out this Ministry and put in that one, but they were asked to secure the return of representatives who would give effect to their views on the great questions which had been more or less neglected in consequence of the struggle of party politics. That appeared to be very wise and just advice. He had learned from experience that men could only fight political battles with political weapons.

Mr. G. WHITAKER asked what society was there which did not make mistakes? and if the Central Chamber had made or should make a mistake it was no reason why the farmers or

landlords of Worcestershire should find fault. They had discussed the various important measures that had come before them, the cattle plague for instance; they sent petitions to Parliament to endeavour to gain that justice which, he regretted to say, they did not obtain during the last Parliament. The farmers, not the landlords, were called upon by the rates of the county to make good the slaughter of animals for the good of the public. A great deal had been said about politics; but did any one suppose for a single moment the farmers of Worcestershire did not consult their own interests so much as to require members of Parliament to support a measure for water-side slaughter of animals. If that was political, then he confessed the Chamber was political. When it was considered that the farmers had only 162 representatives, he thought, with all respect to Lord Lyttelton, that his lordship was asking too much of the farmers of Worcestershire when he proposed to them not to put questions to the persons who aspired to represent them in Parliament. He did not care whether it was a Disraeli or Gladstone, but they must have a minister who would take the burdens from them. When it was considered also that the capital invested in the culture of land amounted to 300 millions, and the expense of the cultivation was 70 millions, they had a right to be heard in the House of Commons. They could not be talked down and told they must not have politics.

Lord LYTTELTON said he thought what Chambers of Agriculture ought to do was to bear with all their weight on members of Parliament, on Parliament itself, and on the debates on particular subjects connected with agriculture, but they were not to determine elections by those particular subjects. Candidates were not divided into two parties, one who supported everything relating to agriculture and the other who did not; if that were so, it would be a different matter. They decided practically on the question who supported Mr. Disraeli on the one side and who supported Mr. Gladstone on the other (Loud cries of "No, no."): He would not press that, but if they called upon all their friends to support A against B, it was self-evident they could not ask for the co-operation of those whose principles would lead them to support B against A.

Mr. AMPHLETT did not know how it was, but they had had every person who had addressed them disclaiming all consideration of politics, and in every case ending with a very warm political discussion. It appeared to him that success in agriculture depended upon two things—first, upon the skill and industry of agriculturists, and, secondly, that they must look for themselves to the obtaining of wise and just laws to regulate their concerns. He apprehended the great object of chambers of agriculture was to suggest, to discuss, and make ready for legislation such alterations in the laws that affected their interests as they thought to be wise and expedient.

Mr. MASFEN repudiated the idea that party politics were mixed up with the chambers of agriculture. Agriculturists had been patiently enduring for a number of years burdens which they ought not to bear; and he was sorry that the cattle-plague bill brought before Parliament last session should have received no better support than it did. Agriculturists were fully determined, now that they were united, to resist the undue pressure which had been brought to bear upon them during recent legislation.

Mr. H. ALLSOPP did not think at that inaugural dinner they were come prepared to decide what were home politics or what were party politics; but he was quite satisfied that if party politics were allowed to be introduced into that or any other agricultural society they might say good-bye to any prospect of success.

At the meeting of the Staffordshire Chamber Mr. MASFEN also said the chamber did not pledge itself not to introduce politics; it was desirable to enter upon these questions with care, as there would always be members who might disagree in politics, but who would act together in questions affecting the agricultural interest.

## THE LAW OF HYPOTHEC.

Six.—“Emancipate the Tenant Farmer.” Such is the title of a little pamphlet just issued from the press in Scotland. The author has not put his name to it; but it is written with ability and conciseness, and the argument must strike an agriculturist, or a landowner, if unprejudiced, as unanswerable upon any just or rational grounds. For those who are not well acquainted with the subject, it will excite curiosity as to what farmer emancipation can mean. We have had Catholic Emancipation, Negro Emancipation, and the emancipation to a large extent of the *Tiers Etat*—the third estate in the realm by the late Reform Bill; but what in all the world can tenant farmers have to do with emancipation? what thralldom have they to complain of to justify an united effort to get rid of it?

Well, the little pamphlet I hold in my hand, certainly treats of but one of the ills to which agricultural flesh is heir to, though there are many, if we look into the subject. For instance, there is the game nuisance, for the patient endurance of which our French neighbours are at this moment taunting us, and setting their own freedom from it against the curse to which the English tenant farmer is so meekly subject. But strong as our Scottish friends are on this grievance, they couple with it another formidable obstacle to the success of agriculture, namely, the law of hypothec, under which the Scotch landlord assumes a right over the property in the hands of an insolvent tenant to the full extent of his claim, the settlement of which is postponed to a distant day, ostensibly for the purpose of assisting a poor tenant in the stocking and cultivation of the farm, but which more frequently impoverishes him, and prevents him from obtaining that credit from others which is necessary to his success.

I referred to this subject in my letter of the 23rd of last month; but this pamphlet, with its striking and comprehensive title, has suggested several new and important ideas to my mind on the subject, to which I propose in this letter to refer: and in the first place, the writer traces or ascribes the practice of hypothec in Scotland—for it never had a statute law for its sanction until last year—to that of the Romans, called the Law of the Twelve Tables. It was under the oligarchy, which in the declining days of Rome held the greater part of the lands of the Republic, which had been mortgaged or sold to them by the husbandmen to whom they or their predecessors had been allotted. Rome was a heathen nation, and maintained a state of slavery at that period; and frequently the husbandman became so indebted to the Patrician that his liberty was compromised, and he was compelled to cultivate the land as a slave of his creditor. If this, therefore, be correct—and history records it—the practice of hypothec assumes a character which no Scotchman worthy of the name would dare to maintain. What comparison can be drawn between the Roman slave and the Scottish tenant farmer to justify the retention of a practice which originated under a social bondage code totally irrelevant to the position the occupier of a farm ought to hold? Under the Roman law the profits of the land belonged to the lord or purchaser, with the deduction of the slave's living, which was scanty enough.

In the next place, this law of hypothec was adopted from the Roman Code by the Scottish chieftains, at a period when land was almost the only property in the rural districts of that country. The clansmen, too, were as much serfs or slaves as the Roman husbandmen, and men were bought and sold on some occasions as a matter of course, all being at the bidding of their chiefs whether in time of peace or war. In establishing their law of hypothec, those chieftains never thought of consulting their serfs; it was a one-sided law to confer a one-sided benefit, under a state of things as different from that at present existing as can possibly be conceived. As civilization increased, and commerce extended itself, the wants of the agricultural class—who by degrees emerged from a state of serfdom to form an intelligent *middle-class*—became more numerous and pressing. Credit was extended to them by the merchant and tradesman, more money being expended upon the land. But with these important changes—during and by

virtue of which the state of serfdom merged into that of respectable tenant-farmers and leaseholders of the lands they cultivated—the same power of the landlord was held good over the whole property of the tenant, just as over that of his serfs under the former system. The difference is obvious. The serf had no creditor but his landlord: he made his own clothes, his own implements of husbandry (such as they were), reared his own horses and cattle—in short, never went off the land for anything, except to fight with, or commit a raid upon some neighbouring clan, and that for the benefit of his lord, who took care to monopolize the spoil. Is there anything in this analogous to the position of the tenant-farmer of the present day? What is that position, and wherein lies the difference, to entitle the tenant to claim an exemption from the practice that gave the landlord the right over the property of the serf? The present tenant then *forms* the land; the serf only grabbed it. He purchases cattle, manure, and implements of husbandry, with a hundred other things that the serf never thought or heard of. For these he obtains credit, and the landlord reaps the advantage as well as the tenant. Just claims, however, are created by these new transactions, the benefit of which being shared between the owner and the occupier, ought to confer equal rights upon those who give the credit and the landlord who derives a full share of the benefit. But the latter still claims his right over the whole effects of the tenant, whether on or off the farm, to the full extent of his claim for rent, as he did when the tenant was a serf, had no other creditors, never laid out one shilling on the land beyond what the land itself produced, and was in fact as much a slave or serf as the Roman cultivator. This law of hypothec, giving as it does exclusive power to the landlord over the property of a tenant—a law which until last year had no statute to support it—has in its operation materially curtailed agricultural credit, and if persisted in and acted upon as it has been of late years will entirely annihilate it, to the enormous injury of the agriculture of the country. Wherever it is suspected that a deed of sequestration is held by a landlord, the cattle-dealer and the manure-dealer, with every other tradesman, and before all the *banker*, will give the poor tenant a wide berth. But the sequestration is a deed of darkness, demanded and executed in secrecy, and the creditors are taken by surprise (if any act of the kind on the part of the landlord can surprise them) when a tenant is seized upon by the landlord, who reaps the benefit of the credit in the value of the stock and crop, and the improved condition of the land.

Is this right? Is it justice, even-handed, between man and man? Is this a fulfilment of the “Golden Rule,” that ought to regulate our actions in dealing with our fellow-men? Is it not rather the law of power, of *force*, a departure from every principle of just law or equity by which men of honour are bound by both reason and the law of God to act? They derive the practice from heathen Rome; are the tenants of the Scottish oligarchy slaves like the Roman cultivators, or serfs like their progenitors, or are their creditors to be totally ignored, as if the tenants still manufactured all their own belongings and expended nothing upon the land? Again, the landlords and their agents claim this right by virtue of their position, as specially necessary to their safety! This argument is so especially absurd as to be scarcely worth refuting. Land, in fact, is the only property that is absolutely safe to trust in the hands of a second party. We never heard, nor any one else, of a tenant mortgaging, or selling, or running away with a farm. He may, it is true, set fire out of spite to the homestead, but in that case, the insurance office is the sufferer; or he may realise a portion of his stock and crop, and betake himself to a foreign country or colony. Even in that case the landlord is better off than the other creditors, for he loses only the profit on the land, whereas they lose both capital and profit. A priority of claim! So far from it, the body of creditors by right have the first claim, because their risk and loss is comparatively larger than that of the landlord, who reaps the full benefit of the outlay of the ten-

ant in the increased value of the estate. Shame on the great landowners of Scotland for insisting on this right! Their estates have increased much in value, and who have been the agents in this improvement? The tenant farmers beyond a doubt or cavil. While the owners have been lounging about the court seeking for places under Government for their younger sons, the tenant husbandmen have converted a wilderness that yielded only food enough for the laird and his retainers, into a garden of

fruitfulness, increasing the wealth and consequence of their magnates. And for this unparalleled and prodigious effort of national industry, they are to be still treated as the serfs, and their property subjected to the claims of the landlord to the exclusion of every other creditor until his claim is fully satisfied. This claim belongs to a state of heathenish slavery, and I trust that the abuse will at a very early day be brought again before Parliament.

AN NORFOLK VOLD FARMER.

## CALENDAR OF AGRICULTURE.

During fresh weather continue the ploughing of clay land stubbles, for next year's wheat-fallows. Plough deeply, 7 or 8 inches to afford an ample earth for the summer workings of the land. The edge of the furrow cut by the coulter and share must be placed in the upright position, and pressed into it by the shouldered width of the mould-board, and not by the length of that part of the implement. This position of the furrows exposes the two sides to atmospheric action in the largest possible extent of surface, and produces the alluvial pulverization of the soil, which is equally beneficial to the spring crops and to the summer fallowings of the land. All kinds of soil are benefited by early ploughing. Stiff lands are pulverized and reduced in the texture; and light lands derive a consolidation from lying in furrows during several months of alternations in the season.

In fine weather raise turnips from the fields by hand-dressing; carry the bulbs to the store pit, and give the tops and small roots to the young cattle in the yards, and to the store sheep on grass leys and the unploughed stubble grounds.

During frosts that prevent ploughing, carry fuel of all kinds to every house on the farm. Draw stones and tiles to any buildings or draining, and for roads; carry earths to the liquid manure pit, and to the dry compost heap, and lime to be mixed into a compost.

Thrash grains regularly by machinery every ten or twelve days, to give fresh straw to cattle in the yards, and litter to all animals. Dress, sell, and deliver the grains from the thrashing barn without any forestalling in the granary, in which both quantity and quality are lost, and a profit is very seldom gained. A granary is not an indispensable article of use on a farm; but as it conveniently covers the cart-shed, the seed grains, horses' corn, and the wool are deposited for a time with convenience. The factorage of grains requires granaries for the purposes of speculation; the object of the farmer demands a ready change into money, to meet the current expenses of his employment, of which the returns are slow and distant by the nature of the articles, without an addition being made by a delay of manufacture. Circumstances may occasion a stoppage at some time of emergency, but not in any adopted system of management of buying grains in store.

Feed work-horses with hays and straws, oats and beans, with one meal of steamed potatoes in the evening. The use of warm food is objected to in the case of animals that are exposed to the weather; but spare meal may be useful of a laxative nature.

Fattening animals must be regularly fed with turnips or other roots, steamed chaffs, and artificial or auxiliary food. Store cattle must have fresh straws daily, with a meal of roots, or other esculents if to be had. Fattening hogs are fed with steamed potatoes mixed with meal in two meals daily; and store pigs in the yard with roots, raw or steamed. Poultry live and are fattened on roots, and meals steamed in mixture, and with light grains from the dressing-machine. The sheep in the fields of growing turnips require a fresh space every two days; and when fed in troughs, a fresh supply of sliced bulbs in the same period of time.

The cattle yards must be frequently strewn with litter regularly and thinly, rather than deeply at one time. Regularity is a most valuable adoption in every business or employment, which must be all reduced to a system, which appoints all performances, when and how to be done.

Plant forest trees of all kinds during fresh weather, on grounds as directed in the calendar of gardening, and protected as is there explained. Single standard trees or in small clumps will fill the object of the farmer, which is directed in the gardening attached.

Cut underwoods, which are manufactured into the articles that suit the locality. Fill up vacancies by planting young trees in pits and by layering the branches of viviparous trees. Plant and wattle the fences into a strong condition, to resist all trespass, which is very hurtful to the young shoots of trees.

Make new hedges, choosing the strongest grown thorns in the nursery, and cut to the length of 4 to 6 inches. Reverse a turf or spade load of earth in the line of the new fence; slope it backwards; place the thorn sets on the slope at 4 inches distant, and cover with fresh soil, grassy and unused. Over this covering throw a loose aggregation of earths in a depth of two-feet, to receive and pass the rains down to the plants, and also defend them from drought and heats. Protect the young shoots by a railing of two bars on both sides of the line of fence, which is allowed to grow to the height of 6 feet, and then trimmed into any form; as the cutting of young thorns spoils the growth, by every incision causing a protrusion of sap and buds. Any vacancy of growth is supplied by fresh lots, or by bending the twigs on both sides over the gap. Any large growth in height or laterally may be lopped and checked; but no general cutting previously to a height of 6 to 8 feet.

Repair old hedges: cut thick stems closely to the ground, in order to raise a wholly fresh growth from the roots, and fill any gaps that may occur by bend-

ing the twigs sideways over the opening. In the case of younger hedges that are sickly and unthriving, cut the stems at different heights, and plant the weaker through the opening, by bending and slant incisions. A fresh growth is thus promoted, which leads to an improved condition. But in many cases a wholly new hedge is the preferable improvement.

All farming property must be insured—the crops as the property of the farmer at the conclusion of harvest, and housed or stacked, with the dead and live stock in animals and utensils, along with the

grains, at or before Christmas term, as a general period of reckoning in such matters. The buildings are the land-owner's property, which is to be insured at his cost at the end of each year. A clause in the lease or agreement of holding the land must bind both parties to perform the special object, as the one is equally necessary with the other, and both are required to form a beneficial effect. The Farmer's Insurance Office has been devised with this special object, and is ready and convenient for the general purpose. The neglect of insurance is a public infiction.

## CALENDAR OF GARDENING.

### KITCHEN GARDEN.

Protect the beds of artichokes with a layer of three-inches of half-decayed leaves strewed evenly over the surface; or if the land be stiff and clayey with as much coal and wood ashes.

Earth up celeri, finally very high in the ridge. Pot and excite a second set of plants of sea-kale. Brick pits and darkened frames with good linings would be a great convenience, and prevent much litter.

Asparagus is easily forced upon deep beds of leaves, raked from woods and parks, avoiding those of laurels and evergreens generally. The plants should be prepared in proper beds for the express purpose, and selected from the best two or three-year-old stocks. Brick pits are the best erections; but good frames set upon leaves, with warm linings, will do well.

### FLOWER GARDEN.

Cover the ground with half-decayed leaves, or lay cakes of moss among the shrubs; keeping them in order by small stones; and in the event of snow falling, no time must be lost to brush the flakes from evergreens before the sun shines hot upon them. Alternate meltings and freezings ruin foliage.

Remove litter of all kinds, and also from lawns and gravels. Protect the glasses of pits and green-houses by mats or screens, or by rollers; give air, but little water. Straw mats, skilfully made with bands or strong pack-thread or cord, afford the best protection to frames and low pits.

### FRUIT DEPARTMENT.

Look over the fruit stores, and remove decaying apples and pears. A dry cool air and a covering of dry straw are the best preservers. Pears, however, should be kept in a warmer situation than apples.

Little can be added to the directions of last month, which may be continued in some cases and in dry weather. But all is contingent, and if the weather be open there is every probability that it will be wet; and then to trample in, and work ground saturated with water, is only to do mischief. Frost may set in early, and therefore every means of defence for plants in frames, under glass, and on warm borders, such as matting, littery straw, and fern, ought to be at hand.

Continue the most careful and never ceasing collection of dung, as has been directed for the

liquid tank and for the dry compost. Lay dung on any grounds for crops, and dig it deeply into the soil, placing the spade-loads of earth obliquely upwards, so as to expose as much surface as possible to atmospheric action. Any waste grounds intended for cultivation may be deeply dug or, rather, trenched in two spit deep, moving the upper stratum of eight inches of good soil, and then digging, forking, and loosening eight inches of more depth, which discovers the quality of the subsoil if drainage be necessary, and also renders it permeable to the action of air and water. A layer of dung is laid on this loosened stratum, which is most beneficially moved upwards into cultivation by the successive diggings of the ground for crops. The land is thus prepared for any plants, either tap-rooted or horizontally creeping, and never fails the eligibility of the mode of preparation.

Plant, during the fresh weather, forest trees of all kinds. Single standard trees in corners or empty spaces for ornament; the oak and beech for wide spreading branches, with the elm and the ash for a higher growth, and the sycamore for the early budding. The stems must be protected from cattle by two bars, fastened to three or four posts sunk in the ground, at a distance from the tree to guard from damage, the tops tapering outwards to protect the spreading of the branches. The young stems must be protected from the gnawings of hares or rabbits by wire-screens of a circular form two feet high, with the top projecting outwards.

Fruit trees—apple, pear, plum, and cherry—are planted singly or in rows 15 feet distant in both directions between the plants and the rows, on grounds that have been deeply trenched two years previous; with manure applied, and drainage used if necessary. The trenching of the ground is better than digging a large hole in which to plant the tree, of which the roots meet a serious obstacle in passing from the moved soil into the firm consolidation of ages. In trenched grounds the consolidation is uniform, and affords a homogeneous habitation to the growing plant. The ground must be trenched two or three years before being planted. The young stems are protected by fence and wire, as before mentioned.

Every operation in the open air is contingent. The land may be iron bound by frost; or swamped by drenching rains; in either case, their labour



would be futile. But privileges are enjoyed by farmers which few others can command. This truth cannot be too often stated, for the calendar is written expressly for the "agriculturist," and not for the owners of fine estates, or even for amateurs. The miserable condition of most gardens attached to farms, reminds what it might be, and the owners of the means they possess. Vegetables the first in

quality and ample in quantity, might be always procured; the ground by the aid of labour, always at command, might be converted to examples of neatness and fertility; and fruits could be had all times by the mere appliance of that heat which is now wasted in air to no purpose whatever. But improvement is and must be the order of the day; and therefore we hope the best.

## AGRICULTURAL REPORTS.

### GENERAL AGRICULTURAL REPORT FOR NOVEMBER.

The weather on the whole having proved favourable, farmers have completed their sowing operations on all forward lands, and the ground having been generally in excellent condition, out-door labours have as a rule been very successful. Farmers have consequently again been enabled to turn their attention to thrashing, and the quantities of wheat coming forward have thus been more extensive. The importations have continued on a liberal scale, and the stocks in the London warehouses have now been fairly replenished, although we believe them to be still below their natural level. According to Mr. George Dornbusch's excellent return, the stocks of wheat in the London granaries, &c., amounted, on the 31st of October last, to 222,976 qrs., against 208,470 qrs. at the end of the previous month. This, however, shows a decrease when compared with August and July last, and a falling off of as much as 70,000 qrs. when compared with the close of last year, the quantity then held being estimated at 296,693 qrs. There is still room therefore for large importations to replenish stocks. Throughout the month the trade has ruled unusually quiet. Millers have operated very cautiously, and only to supply immediate wants, and sales have generally been forced where any large quantities have been disposed of. Values have consequently declined about 3s. to 5s. per qr. in the month, and even at this reduction the demand has been of an almost retail character. Foreign wheat has been very quiet, the inquiry having been principally confined to low Russian qualities for mixing purposes, as, owing to the excellent condition in which our own crop has been secured, fine parcels have not been sought after. With regard to the future course of the trade, we still anticipate a gradual decline in values; but there are many influences at work to retard the downward movement. The Baltic ports are already closed, and further shipments from that quarter cannot be expected until the opening of the navigation, while of the grain vessels now on the way, both from the North and South of Europe, only a comparatively small number is laden with wheat, owing to the fact that during the past few months speculators have been unwilling to operate in this particular grain in the face of an unsettled home market. The majority of these vessels are therefore laden with Spring corn. From America the supplies are likely to be limited. The receipts at New York have been light, and at present prices shipments from that side would, we think, leave very small margin for profit. Add to this the uncertain condition of the money market, and the high rate current for money in Wall-street, we believe that the consignments to the British markets will be unusually limited. Still, there is no doubt that we have secured a very large crop, and, with even moderate importations, we look for a gradual decline in the quotations.

Barley has been very dull, and prices have given way fully 3s. to 4s. per qr. The high rates current here have attracted heavy importations from the Continent. It is stated on reliable authority that about 40,000 qrs. were shipped to the United States; but even this heavy withdrawal has not prevented the reduction.

Malt has also tended downwards, and the market for oats has been less firm.

Beans have given way about 2s. per qr.

It was not anticipated that the extreme prices obtained

for Spring corn during the past few months could be maintained for any length of time.

In the wool trade more activity prevailed towards the close of the month, although the Electioneering business has greatly interfered with trade. English wool has been firm in value, while at the public sales of Colonial produce, opened on the 28th ult., the attendance of buyers was numerous, and prices advanced 1d. per lb.

The imports of foreign hops have been somewhat extensive, and some few parcels have even reached us from Buenos Ayres. The demand has been principally confined to choice qualities, but the sale has been very dull for all descriptions, and holders have been somewhat anxious sellers, even on reduced terms.

Large supplies of potatoes have been on offer, both home-grown and foreign, and the quotations have been much depressed. English regents are now selling at 80s. to 130s. per ton, while French and Belgian whites are difficult to quit at 40s. to 75s. per ton.

There appears to be a considerable improvement in the root crops, although the time is now past to look for any great yield. Still, appearances justify the conclusion that we shall not fare so badly during the winter as was anticipated. Hay and clover have, consequently, been less in demand, and prices have ruled easier. We quote: Meadow hay £4 5s. to £5 15s., clover £4 5s. to £6 10s., straw £1 5s. to £1 15s. per load.

In the Scotch markets fair average supplies of produce have been on offer. Wheat has been gradually on the decline, but in the value of spring corn very little change has taken place.

In Ireland the corn trade has ruled heavy, with a downward tendency in the quotations, for all descriptions of grain.

### REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

Since our last report, the supply of grass in the pastures has considerably increased, under the influence of moist weather, and the necessity for despatching cattle to market has been less apparent. Upon most lands, beasts can now obtain a fair feed, and the arrivals from our own grazing districts have consequently been less extensive. As regards the actual weight of meat forwarded, however, but little diminution can be noticed, inasmuch as the quality of the stock has been steadily improving, although, as yet, very few prime breeds have been offered. The receipts from Scotland have been on a full average scale, and the bulk of the supply has been received in good condition. At the same time a marked improvement has been noticeable in the quality of the Irish breeds, of which a fair number have arrived. Notwithstanding that the supply of beasts on sale has been somewhat restricted, heaviness has been the most prominent feature in the trade. At one period the best Scots and crosses realised 5s. 6d., but 5s. 4d. per 8lbs. has been the average quotation.

Although the regulations compelling the slaughter of foreign sheep at the place of debarkation are still in force, foreign graziers have not been deterred from sending their stock to this country, and the arrivals during the month have amounted to 18,162 head, the whole of which have been killed at the

waterside. The supply of English sheep in the Metropolitan Cattle Market has been rather large, but the quality has been indifferent. In all breeds sales have progressed slowly, and a decline of 4d. per 8lbs. has been established in prices. The best Downs and half-breeds are now selling at 5s. against 5s. 4d. per 8lbs., the opening price of the month.

Not much fluctuation has taken place in the value of calves. Prime animals have been scarce and dear, but heavy stock has been comparatively neglected. The quotations have ranged from 3s. 6d. to 5s. 6d. per 8lbs.

On the whole the market for pigs has been steady, but without activity; and prices have been supported. Large Hogs have sold at 3s. 4d. to 3s. 10d., and small Porkers 4s. to 4s. 6d. per 8lbs., to sink the offal.

The imports of foreign stock into London have been as under:—

	Head.
Beasts ... ..	9,301
Sheep ... ..	18,162
Calves ... ..	598
Pigs ... ..	358
	<hr/> 28,504

## COMPARISON OF IMPORTS.

Nov.	Beasts.	Sheep.	Calves.	Pigs.
1887 .....	10,761	33,202	618	2,064
1886 .....	13,278	38,389	1,290	1,187
1885 .....	16,254	52,517	2,528	7,770
1884 .....	17,137	34,792	2,970	5,947
1883 .....	11,020	30,347	1,770	2,202
1882 .....	6,839	28,577	1,659	633
1881 .....	5,295	27,833	946	1,211
1880 .....	6,961	22,723	1,804	828
1879 .....	5,927	21,907	997	159
1878 .....	4,787	18,258	1,174	156
1877 .....	4,409	17,830	2,687	136
1876 .....	6,103	16,380	1,152	309
1875 .....	7,367	17,094	1,127	454
1874 .....	7,190	16,604	1,108	369

The total supplies exhibited in the Metropolitan Cattle Market have been as follows:—

	Head.
Beasts ... ..	19,249
Sheep ... ..	98,390
Calves ... ..	1,048
Pigs ... ..	1,404
Total ... ..	<hr/> 120,091

## COMPARISON OF SUPPLIES.

Nov.	Beasts.	Cows.	Sheep.	Calves.	Pigs.
1887 .....	24,080	110	109,960	1,016	2,350
1886 .....	24,660	120	95,800	1,190	3,090
1885 .....	36,820	295	167,230	2,858	2,811
1884 .....	32,800	542	114,300	2,587	2,900
1883 .....	27,704	508	99,130	2,156	3,170
1882 .....	30,139	532	110,020	2,313	3,172
1881 .....	26,590	580	109,370	1,370	3,430
1880 .....	25,400	500	103,600	2,112	2,920
1879 .....	26,492	522	120,840	1,299	2,800
1878 .....	24,856	534	114,043	1,437	2,970
1877 .....	25,383	504	103,120	3,002	3,037
1876 .....	25,444	515	105,750	2,096	3,415
1875 .....	27,411	457	97,460	1,585	3,535
1874 .....	23,442	512	121,031	1,848	2,786

The district arrival of beasts thus compare with the three previous years:—

From—	Nov. 1885.	Nov. 1886.	Nov. 1887.	Nov. 1888.
Lincolnshire, Leicestershire, and Northamptonshire .....	9,800	7,200	8,760	9,500
Other parts of England .....	3,550	2,450	2,640	1,950
Scotland .....	448	154	43	685
Ireland .....	1,000	880	1,350	708

Beasts have sold at from 3s. to 5s. 4d.; sheep, 2s. 10d. to 5s. 4d.; calves, 3s. 6d. to 5s. 6d.; and pigs, 3s. 4d. to 4s. 6d. per 8lbs., to sink the offal.

## COMPARISON OF PRICES.

	Nov., 1885.	Nov., 1886.	Nov., 1887.
	s. d. s. d.	s. d. s. d.	s. d. s. d.
Beef from .....	3 4 to 5 6	3 6 to 5 4	3 2 to 5 2
Mutton .....	4 0 6 8	3 8 6 4	3 2 5 0
Veal .....	4 4 5 4	4 2 5 10	4 4 5 3
Pork .....	4 0 5 8	3 10 5 2	3 4 4 3

With the advent of cool weather, the arrivals of dead meat from the continent have been on a more liberal scale, nevertheless they have not been extensive. The supplies of foreign, town and country, killed meat at Newgate and Leadenhall have exceeded the demand, and prices have ruled rather easier.

Beef has sold at from 2s. 10d. to 4s. 6d., mutton, 3s. to 4s. 4d.; veal, 3s. 6d. to 4s. 8d.; and pork, 3s. to 4s. 6d. per 8lbs. by the carcass.

## AGRICULTURAL INTELLIGENCE, FAIRS, &amp;c.

**AFFORD FAIR.**—There was a good turn-out of cattle, and, notwithstanding dull times for the sale of cattle, a good deal of business was done. One-year-old queys £10, a fat lot £14, 7 two-year-old cross stots for £5 each, 2 one-year-olds for £12, a calf at £3, 2 heifers and a stot for £30, two-year-old queys for £12 10s., 2 two-year-old stots at £7 7s. each, a year-old stot at £7, a fat quey for £14. There were about 300 head of sheep, and a good number sold. Mr. Allan, Forre, bought a lot at 11s. 6d. each.

**ALYTH FAIR.**—The attendance of sheep-farmers and dealers was about the same as on former years. The same remarks apply to the turn-out of sheep, the most of which were lean. It was about noon ere any business of any extent was done, and then sales took place but slowly, the tone of the market being languid; and at the close several lots left unsold. The following few sales will show the prices of the various sorts of sheep: Blackfaced widders 26s. per head, "cross" ewes 12s. each, fat blackfaced widders 20s. each, 100 Cheviot widders 22s., greyfaced hogs 31s., blackfaced ewe lambs 10s. each, a lot of blackfaced fat at 18s. 6d., a lot of "cast ewes," blackfaced, at the rate of £11 10s. per score. The show of cattle was very large, but principally of a lean description. Fat was in good demand, but not so with lean beasts. The following were a few of the transactions in cattle: Six Irish two-year-olds £10 each, and a farrow cow £10, a cow at £14 10s., a fine lot of widders at 32s., two queys at £20, 6 stots at £22 each, 4 queys at £13, yearlings from £5 to £9, a lot of lean beasts at £7 10s. each, fat stots at £23 per pair, 10 yearlings at £6 10s. each, a fat cow at £13, 15 Highlanders at £13, 5 queys at £40 the lot, and 8 fat queys at £60.

**ANDOVER FAIR.**—A short supply of Sheep; ewes and wethers fully maintained former prices, but lambs may be quoted 1s. per head higher.

**BAKEWELL FAIR.**—The supply of cattle was very large, and a moderate trade was done at drooping prices. Scotch beef 8s. 6d. per stone, English heifers 8s. per stone, bullocks and cows from 7s. 6d. to 7s. 9d., old cows 6s. to 7s. 6d. Good milking cows met with a brisk demand at from £16 to £23, second-class £12 to £16, barren cows, in-milk, from £11 to £14, lean barrens from £8 to £10, barren heifers from £9 to £11; bullocks, few shown and more inquiry, from £8 to £12. Many storks were shown, but prices were lower, namely, from £5 to £7. The supply of sheep was moderate, with a better inquiry. Wethers 6d. per lb., ewes 5d. to 5½d., store heags from 14s. 6d. to 21s. each. A few store sheep were shown, but scarcely noticed. Good show of pigs and moderate business done. Small pigs from 16s. middling size 32s. to 40s., strong pigs 45s. to 50s., sows 40s. to 75s.

**BANBURY FORTNIGHTLY FAIR.**—The supply of sheep was not large, and the trade was slow, prices varying from 4s. 4d. to 4s. 6d. per stone. There were not many cattle in the market, and the business done was at about 4s. to 4s. 8d. per stone.

**BOSTON HORSE FAIR.**—There was not a large show of Useful yearling colts made from £24 to £30 each.

**CREWE FAIR.**—There was a good fair as regards the animals shown, and sales for stock were very fair. Pigs were a little lower, but not a great trade done in them.

**DONCASTER FAIR.**—There was but a meagre show of horses and sheep, but a very large number of horned cattle. Farmers, however, were slow to buy any but the better class of animals; inferior kinds, in consequence, had to be sold at a serious decline, or left over. Good bullocks and in-calvers were in request—the former at prices varying from £15 to £19; inferior sorts Made from £10 to £14 each; steers and heifers got from £14 to £15 English, and £8 to £12 each: large lots of all kinds remained unsold. In sheep, which numbered 600, few sales were effected, trade being almost at a stagnation point in this department. As stated, the horse fair was a poor one. Good cart horses would have sold, if there had been any on offer; but there were none, only of a medium class, which fetched from £20 to £35. Nags, for general use, remarkable for an absence of blood and action, but well supplied with bone, made from £12 to £18.

**KNARESBOROUGH FORTNIGHTLY MARKET.**—There was only a moderate show of stock, quality inferior, and prices a little advanced at from 7s. 3d. to 8s. per stone. A thin supply of fat sheep at 6d. to 7d. per lb. Fat calves 6d. per lb. Pork pigs 7s. 6d. to 8s. per stone.

**MORETONHAMSTEAD GREAT MARKET.**—There was a moderate supply of cows and calves varying in price from £11 to £17. The sheep pens were nearly all filled with Dartmoors and other prime sheep.

**OSWESTRY FORTNIGHTLY FAIR.**—The supply of stock was not so large as previous fairs, but pigs were more plentiful. The quotations are for beef 6½d. to 7½d., mutton 6½d. to 7½d. for prime, and fat pigs 6½d. per lb.

**SALISBURY FORTNIGHTLY MARKET** was fully supplied with beasts; the trade, excepting for prime, ruled heavy, at easier figures; inferior sorts in particular hung on hand, many being left unsold. Sheep were a very large offer, with a good proportion of excellent qualities. In this department lower prices had to be accepted, and even then sales could only with difficulty be effected, the market being over supplied. Oxen realized from 11s. 6d. to 12s. 6d., and heifers 10s. 6d. to 11s. 6d. per score for the best; mutton from 7d. to 7½d. per lb. for best Downs; ewe mutton may be quoted from 5½d. per pound.

**SETTLE FAIR** was considered to be the best we have had this season. Beef 6½d. to 7½d., wether mutton, 6½d. to 7d., ewes 5d. to 6½d. per lb.

**WORCESTER FAT STOCK MARKET.**—There was very little variation in the prices from the last mart. Some good two-year-old wethers fetched 45s. by auction, and fat ewes 48s. 6d. Pigs were in demand at 10s. to 10s. 6d. per score.

**IRISH FAIRS.**—**ENNISCORTHY:** Both buyers and stock were abundant, and the spirited transaction of business never lacked throughout the day. Beef sold from 55s. to 60s. per cwt., fat pigs from 52s. to 55s. per cwt., and fat sheep from 4d. to 5½d. per lb. New milch cows, springers, and three-year-old heifers sold in each class from £10 to £16 each, strippers from £8 to £10 10s., two-year-olds from £7 to £11, yearlings from £3 10s. to £6, hogget sheep from 27s. to 35s. each, sheep generally from 30s. to 43s. each, store pigs varied from 35s. to 50s. each, bonhams from 10s. to 16s. Farmers' nags and rough animals sold from £10 to £15.

**CASTLEBAR:** Good milch cows were in brisk demand. at from £11 to £16 10s., inferior ditto £7 to £10, springers about the same, strippers £7 to £10 10s., calves £2 10s. to £4 10s., three-year-old heifers and bullocks (bullocks more in demand) brought £10 to £14 10s., two-year-old do. £8 10s. to £9 15s., one-year old ditto £3 10s. to £5 10s. Sheep on the advance; ewes 33s. to 40s., wethers 30s. to 37s., hoggets 20s. to 26s., lambs 13s. to 18s. Mr. James Daly, Castlebar, sold 30 lambs at 18s. Horses were in brisk demand, and at advanced prices. Good cart-horses £12 to £17, inferior £8 to £11, saddle ponies £9 to £13, hack ponies £5 10s. to £8. Young foals were in great demand, and brought very high prices in proportion to the scale of prices obtained for the last twelve months. There was an English dealer in the market who made large purchases, at prices varying from £2 15s. to £4 10s. A large supply of bacon pigs, which brought from 4½s. to 50s. per cwt., and brisk business done; store pigs 45s. to 60s. each, slips 35s. to 45s., bonnies 14s. to 20s. each.

**CARLANTOWN:** Best finished lots of bullocks and heifers realised fully 65s., second-class from 56s. to 60s., and inferior from 48s. to 52s. per cwt.; all bought up. Store cattle in fair

condition were nimbly bought up for stall-feeding. Three years old heifers from £12 10s. to £14 10s., two years old from £9 10s. to £10, yearlings from £4 to £7, two and a half years old store bullocks from £10 10s. to £14 per head, yearlings from £5 to £9 a-piece. Young springers of good quality went from £15 to £21 10s., inferior and milch cows from £12 to £14 each. The sheep fair was an average one for the season of the year; aged wether mutton was scarce, but in active demand, and sold from 6d. to 7d., ewe mutton from 5d. to 6d. per lb.; ewes from 45s. to 52s. 6d. as a rule, lambs from 34s. to 44s. each. Of swine the supply was moderate, but the demand brisk, and bacon maintained remunerative prices, say 10s. 6d. to 11s. per score; store pigs 40s. to 50s. each, suckers 16s. to 22s. a-piece.

**CARMARTHEN BUTTER MARKET, (Saturday last.)**—We have been without change in this market for the last fortnight. We are firm to-day, at 14d. for best average, with a small supply, and no prospect of lower prices. Cheese steady—say 26s. to 28s. per cwt.

**CORK BUTTER EXCHANGE, (Friday last.)**—Ordinary: first quality 130s. to 127s., second quality 127s. to 124s., third quality 121s. to 118s., fourth quality 119s. to 116s., fifth quality 116s. to 113s., sixth quality 99s. to 96s. per cwt. Mild cured: first quality 138s. to 135s., second quality 128s. to 125s., third quality 122s. to 119s. per cwt. Thirds, fourths, fifths, and sixths of kegs 4s. per cwt. less. Currency—Ordinary butter, 10s. per cwt. less; sponged butter, 2s. do.

**BAKEWELL CHEESE FAIR.**—There was a fair pitch. Poor Cheese 60s. to 63s., fair Cheese 64s. to 68s. per cwt. One or two choice dairies realized 70s. per cwt.

**CREWE CHEESE FAIR.**—There was a good pitch of Cheese, and a good sale, all being cleared at a comparatively early hour. Prices, slightly on the advance, ranged from 60s. to 65s., and 70s. for the better qualities.

**GLASGOW, (Wednesday last.)**—The supply of Cheese continues liberal, with a fair demand. There were 3,045 Cheese, and about 30 tons sold. Cheddars 56s. to 64s., Dunlop 53s. to 64s., skim-milk 24s. to 26s.

## POTATO MARKETS.

### SOUTHWARK WATERSIDE.

**LONDON, MONDAY, NOV. 23.**—During the past week the arrivals coastwise have been fair; by rail and from abroad, still in excess of the demand. From all parts the samples are very various in quality and soundness. The following are this day's quotations:

Yorkshire Regents .....	80s. to 120s. per cwt.
Lincolnshire ditto .....	70s. to 100s. "
Dunbar and East Lothian ditto .....	90s. to 120s. "
Perth, Forfar, and Fife Regents .....	60s. to 110s. "
French and Belgian whites .....	40s. to 70s. "

### BOROUGH AND SPITALFIELDS.

**LONDON, MONDAY, NOV. 23.**—Large supplies of Potatoes are on sale at these markets. The trade has been heavy for all descriptions at drooping prices. The import into London last week consisted of 2,873 bags, 789 sacks, 204 tons, 1,593 packages from Antwerp; 222 bags, 390 sacks Boulogne; 1,195 bags, 250 sacks Calais; 1,100 bags, 2 baskets Rotterdam; 2,764 sacks, 588 tons Dunkirk; 434 bags, 55 tons Ostend; 974 bags Rouen; 28 sacks, 3 baskets Hamburg; 25 packages Rouen; 60 tons St. Valery; 22 bags Harlingen; 10 bags Amsterdam; and 5 sacks Brussels.

English Regents .....	60s. to 130s. per ton.
Scotch Regents .....	60s. to 130s. "
French .....	40s. to 80s. "

**COUNTRY POTATO MARKETS.**—**BARNLEY (Saturday last):** Rocks 12s. to 12s. 6d., and Regents 18s. to 19s. 6d. per load; retail 1s. to 1s. 2d. per peck. —**DONCASTER (Saturday last):** A good supply to hand, but only a moderate trade, at last week's prices. —**MANCHESTER (Saturday last):** Cheshire potatoes 7s. to 11s., Scotch do. 10s. to 14s., and Yorkshire do. 11s. to 22s. per 252lbs. —**YORK (Saturday last):** There was only a moderate supply of potatoes, but the demand not appearing brisk, there was little alteration in the prices. Regents sold from 10s. to 12s. per tub of 280lbs., and from 10d. to 11d. per peck retail.

## REVIEW OF THE CORN TRADE DURING THE PAST MONTH.

November on the whole has been a very favourable month for agriculture. We have indeed had high winds (damaging to the shipping interest), and an occasional touch of frost with some snow; but fogs have not had the usual ascendant, and although the rains have sometimes been heavy, they have generally been so soon absorbed by the warm soil below that our ponds in many places are still deficient. Nothing can exceed the generally healthy aspect of the wheat plant, its evenness and robust growth where early planted, and even the younger plants look well. We have therefore a good beginning as regards this grain, and this impression, with the quantity yet on hand, has certainly tended to lower values in the course of the month about 4s. per qr.; so that this grain exceptionally fine is lower relatively than barley and other Spring corn. There will therefore be no scruple on its free use, should the winter be so hard as to make the pressure of stock felt by farmers. All this is in the face of great wants in Spain, and French markets tending upwards, and a severe frost in Russia stopping all supplies for the winter. Nor has the London market been at any time overburdened with heavy supplies of English wheat. The fact is, town millers and foreign importers of flour have found themselves undersold by country millers, who, by the free mixture of low-priced Russian wheat with English, can send up very fair samples of flour at about 13s. per sack below the top price of town-made. The goodness of the crop thus works against the town trade, and millers here have no remedy to meet the difficulty but by reducing their quality or lowering their bids, and, as they do not deem the former safe, they prefer the latter to the mutual discomfiture of English factors and farmers. The best foreign wheat has for the same reasons been passed by, and if in these Election times we may use freedom of speech, we would say, "The roughs carry the day." But as all roughs are dispersed by bad weather, so the rough arrivals from St. Petersburg, &c., will be reduced by the frost. The time will doubtless come for a reaction; but somehow or other people don't like being starved for their exemplary patience. When the Christmas rents are paid, however, the farmer may look with more satisfaction on his remaining stocks, with a prospect that they will pay him better than the funds. The sun has indeed shone upon the barley crop, and shines still, and he will doubtless remember that ancient saying, "make hay, &c.," and accommodate every willing purchaser to his utmost, and when the sun rises upon the wheat stocks in Spring, he can do as he pleases. The following prices were quoted recently at the several places named: White wheat at Paris, 58s. 6d., red 54s. 6d.; red at Courtrai in Belgium, 54s.; at Liege, 51s.; at Louvain, 52s.

6d.; white at Rotterdam, 53s. 6d.; red at Romanshorn in Switzerland, 50s.; at Porrentruy, 52s.; Saale at Hambro', 50s.; Wahren, 52s.; best high mixed at Danzig, 52s., or with cost, freight, and insurance, 57s.; red at Cologne, 41s.; Chili wheat at Santander in Spain, 69s.; red Berdianski at Barcelona, 57s.; soft wheat at Algiers, 54s.; red wheat at Pesth in Hungary, 41s. 6d.; at Trieste, 38s.; wheat at Alexandria, 36s. to 39s.; white at San Francisco, 49s. 6d.; red at Montreal, 40s. per 480lbs.; at Chicago, 31s. 6d.; at Milwaukee, 33s. 6d.; No. 1 Spring at New York, 47s. per 480lbs.

The first Monday in Mark Lane commenced on moderate arrivals of English wheat, with but a limited supply of foreign. The fresh samples exhibited on the Kentish and Essex stands were by no means numerous, but the trade was unusually dull, and very little could be done, though factors were willing to take 1s. to 2s. per qr. less money. The better sorts of foreign were wholly neglected, and could have been bought 1s. per qr. cheaper, but a continued demand for low Russian descriptions prevented their being sold at any reduction. With a large number of vessels off the coast, floating cargoes were 1s. per qr. lower. The country markets, though feeling the influence of the dull accounts from London, did not show a like reduction in price. Several in the middle of the week were 1s. lower, and nearly all Saturday's advices were as much in favour of buyers, but Stockton, Bury St. Edmunds, and Manchester were not at all cheaper, in consequence of a good demand, and Liverpool throughout the week was only dull. Edinburgh tended rather downwards, and Glasgow noted 1s. per qr. decline. Dublin and Belfast, though both dull, noted no difference in their quotations.

The second Monday had an increased foreign supply, but less of home growth. Not many samples appeared during the morning on the Essex and Kentish stands, yet millers maintained their reserve, and were unwilling still to buy unless another decline was submitted to. Factors not considering this to be justified by the state of the country markets, very little business was done. The best foreign sorts were again without inquiry, this being limited to Russian sorts, which mostly were bought for mixing in the country mills. Floating cargoes were unaltered. Country advices during the week were all dull, and some places gave way 1s. per qr., but generally farmers resisted the attempts of millers to reduce prices. Edinburgh and Glasgow found sales very slow, but no difference in values was noted. Dublin only experienced a retail inquiry for Irish wheat at former rates, the tendency of foreign being downwards, but at Belfast both sold well at unaltered prices.

On the third Monday there was about the usual

quantity of English wheat, but the foreign supplies were largely increased, principally from Cronstadt and St. Petersburg. Few fresh samples were exhibited during the morning from the near counties, but no way could be made without a reduction of 1s. per qr. from the previous Monday's rates. All foreign descriptions were equally dull and fully 1s. per qr. cheaper to make even retail sales. Floating cargoes, though not abundant, participated in the general decline of 1s. per qr. The country reports this week were again dull, and several 1s. per qr. lower; among these were Hull, Newcastle, Rochester, Gloucester, Gainshorough, Melton Mowbray, Market Rasen, and Uppingham; and Liverpool was extremely heavy and cheaper to sell. Edinburgh was unaltered, but Glasgow gave way 1s. per qr. Trade at Dublin was very limited and prices scarcely equal to the previous week.

On the fourth Monday the supplies were moderate, both in English and foreign qualities. There were very few fresh samples on the Kentish stands in the course of the morning, but there were rather more from Essex. The market opened very heavily, and for a long time nothing was done, but eventually some progress was made at fully 1s. per qr. decline. It was necessary also to accept a like reduction on all the better qualities of foreign, and even low Russian sorts were the turn in buyers' favour. The imports into London for four weeks were 26,532 qrs. English wheat and 89,161 qrs. foreign, against 27,213 qrs. English and 157,953 qrs. foreign for the same time last year.

The imports into the Kingdom for four weeks ending Nov. 14 were 2,264,369 qrs. wheat, 292,316 cwt. flour. The general average commenced at 53s. 4d. per qr., and closed at 52s.; that of London began at 56s. 2d., and ended at 53s. 5d. per qr. The London exports were only 245 cwt. flour.

The flour trade, like that of wheat has been constantly dull and prices receding. Town millers on the first Monday reduced prices from 50s. to 47s., and during the month country qualities have fallen fully to the same extent, though the reduction on foreign has scarcely exceeded 2s. per sack, and 1s. to 1s. 6d. per brl. This latter has been exceedingly difficult to quit, from the lower relative values of Norfolk flour, good qualities of which have been selling at 34s. per sack. The fineness of the English crop permitting a free admixture of cheap Russian without perceptible detriment, and the same cause has lessened the freedom of Town millers' sales, the difference in quotations being so great. The imports into London for four weeks were 85,149 sacks from the country and 7,267 sacks and 3,823 brls. foreign, against 85,192 sacks country and 36,214 sacks and 11,506 brls. foreign for the same time in 1867.

The supplies of maize have continued good, but some reduction in barley has somewhat lessened the demand for this grain, though about the same prices have been paid, it still being cheaper than beans; fine yellow is held at 38s. per qr. in store. The imports into London in four weeks were 38,907 qrs., against 4,575 qrs. in 1867.

The trade in malting, after receiving a temporary stimulus by the American demand, which took off about 40,000 qrs., relapsed afterwards, bringing the

rates of British quantities to about their former price, say 51s. for the best; but foreign malting has declined in value 1s. to 2s., and grinding 6d. to 1s., supplies having been well kept up. There seems no anticipation of a further demand from New York, and the whole aspect of the trade was rather downwards than otherwise. The high rates of every quality greatly limit the consumption. The imports into London for four weeks were 17,522 qrs. British, 41,930 qrs. foreign; against 12,965 qrs. British, 20,550 qrs. foreign for the same period last year.

The malt trade was never much influenced by the American demand for barley, and has declined during the month fully 2s. per qr., with very little prospect of recovery.

The falling off in the supplies of foreign oats for the first half of the month gave a little firmness to the trade, but subsequently arrivals became heavy, and new sorts lost value to the extent of 6d. per qr., and even old Russian were rather cheaper to sell, though the closing of Cronstadt and Petersburg by ice was calculated to give more tone to the market. The last Russian supplies have proved mostly of inferior quality, but all fair 38 lbs. corn was held at 27s. 6d. per qr. in granary. The extreme shortness of native supplies, and only limited arrivals of other qualities from Sweden and the Baltic, suggests the probability that this grain will continue dear all through the winter. The imports into London for four weeks were 2,150 qrs. English, 574 qrs. Scotch, 11,820 qrs. Irish, 159,555 qrs. foreign; against 16,759 qrs. English, 106 qrs. Scotch, 8,230 qrs. Irish, 257,112 qrs. foreign in 1867.

Old beans, notwithstanding the high rates at which they commenced, have all through the month fully maintained their value, and seem likely to do so, fine Saidi being worth 39s. 9d. at Alexandria, Behara 36s., but new English rather gave way on the last market say 1s. per qr. Little change of value can be expected in this grain, the crop being so deficient. The arrivals into London for four weeks were 2,573 qrs. English, 5,601 qrs. foreign; against 4,102 qrs. English, 8,038 qrs. foreign in 1867.

Peas of all sorts have been very steady as to value through the whole month, but the high rates paid for hog-feed, say duns and maples, have limited the demand. The future value of boilers will be determined by the character of the winter. As we have very poor stocks in London, a hard winter might send them up 10s. per qr., Canadian being now worth 48s. On the other hand, they are not likely to be reduced much, as they well supply the place of beans for many purposes. Duns and greys are worth 45s. to 46s., maples to 48s., and very scarce. The imports into London for four weeks were 1,881 qrs. English, 4,412 qrs. foreign; against 2,862 qrs. English, 12,582 qrs. foreign in 1867.

The supplies of linseed have been good during the month, and the demand both for seed and cakes has in consequence somewhat slackened; but prices have very little altered, the high values of all feeding stuffs causing a steady demand for cattle feeding, the gluten and oil in this description of feed

greatly accelerating the process of fattening. In cloverseed but little has been passing, prices having materially, yet slowly, risen since the close of last season, from a belief that the drought has caused very small crops in England and France. In America they do not seem to have much, and the chief offers hitherto have been from Germany, at moderate rates; but dealers seem by no means inclined to further anticipate the trade, which has been frequently found very deceptive. Trefoil has been quiet though low priced, and canary seed has declined; new foreign tares have not yet been actively in demand, the price being too high, say 46s. to 48s. per qr. for small, to tempt speculative buyers.

**CURRENT PRICES OF BRITISH GRAIN AND FLOUR  
IN MARK LANE.**

		Shillings per Quarter
WHEAT, new, Essex and Kent, white	red	43 to 56
	Norfolk, Lincolnshire, and Yorkshire	48 50
BARLEY	36 to 38 Chevalier	48 51
	Grinding 34 37 Distilling	43 45
MALT, Essex, Norfolk, and Suffolk	60 extra	67 74
	Kingston, Ware, and town-made 60	74 77
	Brown	53 62
RYE		40 42
OATS, English, feed	28 to 35 Potato	32 37
	Scotch, feed 00 00 Potato	00 00
	Irish, feed, white 24 27 Fine	28 31
	Ditto, black 24 27 Potato	38 39
BEANS, Masagan	45 46 Ticks	45 46
	Harrow 46 48 Pigeon	51 58
PEAS, white, boilers	44 48 Maple 46 to 48 Grey, new	44 46
FLOUR, per sack of 280lbs.,	Town, Households	43 47
	Country, on shore 33 to 34	37 38
	Norfolk and Suffolk, on shore	32 33

### FOREIGN GRAIN.

		Shillings per Quarter.	
WHEAT, Dantsic, mixed	55	to 57	extra 58 to 60
Königsberg	54	57	extra 58
Rostock	51	54	fine 55
Silesian, red	50	53	white 55
Pomer., Meckberg., and Uckermark		red	50
Russian, hard, 45 to 47		St. Petersburg and Riga	46
Danish and Holstein, red	47	60	American 45
French, none		Rhine and Belgium	00
Chilian, white	58	Californian	58
		Australian	58
BARLEY, grinding 31 to 34		distilling and malting	37
OATS, Dutch, brewing and Poland	23 to 34	feed	26
Danish and Swedish, feed	25 to 30	Stralsund	26
Canada 25 to 28, Riga 25 to 27, Arch.	25 to 27, Pabg.		26
TARES, new Spring, per up			43
BEANS, French and Holstein	44 to 47	rye	41
Königsberg			43
PEAS, feeding and maple	43	fine boilers	45
INDIAN CORN, white	35	38	yellow 36
FLOUR, per sack, French	41	43	Spanish, p. sack 00
American, per brl	35	37	extra and d'ble 36

### IMPERIAL AVERAGES.

For the week ended Nov. 14, 1888.

Wheat.....	64,842½	qrs.	52s.	0d.
Barley.....	70,682½	„	46s.	9d.
Oats.....	3,527½	„	32s.	0d.

### COMPARATIVE AVERAGES.

Years.	WHEAT.			BARLEY.			OATS.		
	Qrs.	s.	d.	Qrs.	s.	d.	Qrs.	s.	d.
1864...	71,816	38	9	77,499	30	1	5,023	19	11
1865...	71,570	48	11	63,816	33	7	5,240	23	9
1866...	69,439	56	7	78,677	45	3	5,302	23	6
1867...	65,920	52	0	77,282	42	7	6,536	26	1
1868...	64,842	70	1	70,683	46	9	5,271	28	0

### AVERAGES

FOR THE LAST SIX WEEKS:		Wheat.	Barley.	Oats.
		d.	d.	d.
Oct. 10, 1868.....		53 3	45 2	27 1
Oct. 17, 1868.....		53 8	45 7	27 1
Oct. 24, 1868.....		53 4	45 11	28 11
Oct. 31, 1868.....		52 11	46 1	28 0
Nov. 7, 1868.....		52 8	46 7	28 5
Nov. 14, 1868.....		52 0	46 9	28 0
Aggregate of the above .....		53 1	45 10	28 0
The same week in 1867.....		70 1	42 7	26 1

### FLUCTUATIONS in the AVERAGE PRICE of WHEAT

PRICE.	Oct. 10.	Oct. 17.	Oct. 24.	Oct. 31.	Nov. 7.	Nov. 14.
54s. 3d.		***	***	***	***	***
53s. 8d.	***		***	***	***	***
53s. 4d.		***	***	***	***	***
52s. 11d.	***	***	***	***	***	***
52s. 3d.	***	***	***	***	***	***
52s. 0d.				***		

SEED MARKET.  
BRITISH SEEDS.

MUSTARD, peroush., brown 14s. to 16s., white	13s. to 15s.
CANARY, per qr.	70s. 7s.
CLOVERSEED, red.	58s. 7s.
CORIANDER, per cwt.	20s. 21s.
TAHES, winter, new, per bushel	11s. 12s.
TRIFOLI.	22s. 24s.
RYEGRASS, per qr.	22s. 30s.
LINSEED, per qr., sowing 64s. to 68s., crushing	62s. 64s.
LINSEED CAKES, per ton	\$11 10s. to \$12 0s.
RAPSEED, per qr.	56s. 60s.
RAPSEED CAKE, per ton	\$3 0s. to \$3 10s.

FOREIGN SEEDS.

CORIANDEE, per cwt.	21s. to 22s.
CARAWAY	36s. 38s.
CLOVESHEED, red 56s. to 72s. white	70s. 84s.
TRIFOIL	20s. 22s.
RYEGRASS, per qr.	26s. 32s.
HEMPSEED, small 96s. per qr., Dutch	36s. 38s.
LINSEED, per qr., Baltic 66s. to 60s., Bombay	62s. 63s.
LINSEED CAKES, per ton	£11 10s. to £12 10s.
RAPESEED, Dutch	58s. 60s.
RAPE CAKE, per ton	£8 0s. to £8 10s.

## HOP MARKET.

Mid and East Kent .....	£2 10 .....	£5 0 .....	£8 .....
Weald of Kents .....	2 0 .....	3 5 .....	4 10 .....
Sussex .....	2 0 .....	3 0 .....	4 0 .....
Farnham .....	4 0 .....	5 0 .....	6 0 .....
Country .....	4 0 .....	4 10 .....	6 0 .....
Bavarians .....	2 16 .....	3 10 .....	4 10 .....
Belgians .....	2 2 .....	2 10 .....	3 0 .....
Yearlings .....	3 0 .....	3 10 .....	4 0 .....

**POULTRY, &c., MARKETS.**—Turkeys 5s. to 8s., *Geese* 5s. to 7s., Ducks 2s. to 3s., tame rabbits 1s. 3d. to 2s., wild do. 1s. to 1s. 2d., pigeons 7d. to 9d., pheasants 2s. 6d. to 3s. 6d., partridges 1s. to 2s., hares 2s. to 3s., grouse 2s. to 3s. each. Surrey Fowls 8s. to 10s., *ditto* Chickens 5s. to 7s., Barndoor Fowls 4s. to 6s. per couple. English Eggs 12s., French 10s. per 100.

## ENGLISH WOOL MARKET.

### CURRENT PRICES OF ENGLISH WOOL.

<b>FLEECES</b> —Southdown hoggets.....	per lb.	1	2½	to 1
Half-bred ditto .....	"	1	4	1
Kent fleeces.....	"	1	3½	1 4
Southdown ewes and wethers ..	"	1	2½	1 3½
Leicester ditto .....	"	1	3	1 3½
<b>Sorts</b> —Combing .....	"	1	0	1
Clothing .....	"	1	2	1 6

LEEDS (ENGLISH AND FOREIGN) WOOL MARKET.

(Friday last.)—This week has been so fully occupied with election engagements that business has been of a very limited character in all kinds of wool. The prices of most kinds of English wool are well sustained, and those of foreign have undergone no change. It is expected that the approach-

END OF VOLUME LV.













